






MECABLITZ 54 MZ-4/4i

Bedienungsanleitung
Gebruiksaanwijzing
Manuale istruzioni

Mode d'emploi
Operating instruction
Manual de instrucciones

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Foreword

We congratulate you on purchasing this flash unit and thank you for your confidence in Metz products.

It is only natural that you should want to use your flash unit straight away. However, we recommend that you study these operating instructions beforehand to be able to fully exploit and utilize all the capabilities offered.

The following operating instructions are conceived such that they describe a camera + flashgun system combined with the standard foot 301 or an SCA 3xx2 adapter.

 **Please also open the back cover page with the illustrations.**

This flash unit is compatible with:

- all cameras that have a hot shoe contact
- all cameras that have an accessory shoe without hot-shoe contact, and use a synch cable (see Optional Extras)

•system cameras

Optimal adaptation to your camera is achieved by using an SCA adapter. The enclosed SCA 3xx2/3xx Table will indicate the adapter you require for your particular camera. This table also indicates the special flash functions that can then be performed.

For more information, visit our web site at www.metz.de

We wish you great pleasure with this new flash unit.

Survey of the operating modes • and special functions ◊:

54 MZ-... with SCA 3xx2 adapter:

i Numerous additional special flash functions are available when the mecablitz 54 MZ-... is operated with an SCA 3xx2 adapter. It supports virtually all special flash functions offered by prominent camera manufacturers! The availability of individual special functions, however, depends on the given camera system (camera manufacturer) and the specific camera type. For more detailed information please refer to the SCA Survey Table and the operating instructions for the individual SCA adapters.

- TTL flash mode¹⁾
 - Metz TTL remote mode¹⁾
 - Canon ETTL flash mode¹⁾
 - Canon ETTL HSS flash mode^{1) 2)}
 - Minolta TTL HSS flash mode^{1) 2)}
 - Nikon matrix-controlled fill-in flash mode
 - Nikon 3D multi-sensor fill-in flash mode
 - Nikon D-TTL flash mode³⁾
 - Nikon D-TTL-SD flash mode³⁾
 - Nikon i-TTL-flash mode⁴⁾
 - Nikon i-TTL-BL-flash mode⁴⁾
 - Olympus TTL-flash mode⁵⁾ with digital cameras
 - Manual flash mode with partial light output levels
 - Manual HSS flash mode²⁾ with Canon, Minolta, Nikon
 - Automatic flash mode
 - Metz auto remote mode
 - Stroboscopic mode
- ◊ Manual flash exposure correction in TTL¹⁾ and A mode
- ◊ Flash bracketing series Fb in TTL and A mode
- ◊ 1st or 2nd curtain synchronisation
- ◊ Automatic power-zoom control
- ◊ Automatic AF measuring beam control

- ◇ Automatic maximum flash range indication
- ◇ Automatic flash synch speed control
- ◇ Wake-up function
- ◇ Flash readiness indication in camera's viewfinder
- ◇ Correct exposure indication in camera's viewfinder
- ◇ Triggering control (Pentax, Minolta)
- ◇ Anti-red eye preflash (Nikon)
- ◇ Modelling light function

1) only possible if it can be set on the camera

2) HSS = high speed synchronisation

3) only with 54 MZ-4

4) only with 54 MZ-4i and Nikon SCA-adaptor 3402-M3

5) Olympus E-1 only with 54 MZ-4i and SCA-adaptor 3202-M3

54 MZ... with SCA 3xx adapter:

The additional special flash functions are restricted when the Mecablitz 54 MZ... is used with an SCA 3xx adapter! The availability of individual special functions then depends on the given camera system (camera manufacturer) and the special camera type. For more detailed information please refer to the SCA Survey Table and the operating instructions for the individual SCA adapters.

- TTL flash mode¹⁾
 - Metz TTL remote mode¹⁾
- Manual flash mode with partial light output levels
- Automatic flash mode
 - Metz auto remote mode
- Stroboscopic mode
- ◇ Manual flash exposure correction in A mode
- ◇ Flash bracketing Fb in A mode

- ◇ Automatic flash synch speed control
- ◇ Wake-up function
- ◇ Flash readiness indication in camera's viewfinder
- ◇ Correct exposure indication in camera's viewfinder
- ◇ Modelling light function

1) only possible if it can be set on the camera

54 MZ... with standard foot 301 (control only via hot shoe or synch cable):

- Manual flash mode with partial light output levels
- Automatic flash mode
 - Metz auto remote mode
- Stroboscopic mode
- ◇ Manual flash exposure correction in A mode
- ◇ Flash bracketing Fb in A mode
- ◇ Modelling light function


1. Safety Instructions

- The flash unit is exclusively intended and approved for photographic use!
- Never fire a flash in the vicinity of flammable gases or liquids (petrol, solvents, etc.) - DANGER OF EXPLOSION!
- Never take flash shots of car, bus or train drivers, or of motorcycle and bicycle riders, whilst they are travelling. They could be blinded by the light and cause an accident!
- Never fire a flash in the immediate vicinity of the eyes! Flash fired directly in front of the eyes of a person or animal can damage the retina and lead to severe visual disorders - even blindness!
- Only use the approved power sources listed in the operating instructions!
- Do not expose batteries to excessive heat, sunshine, fire and the like!
- Never throw exhausted batteries on to a fire!
- Exhausted batteries should be immediately removed from the flash unit! Lye leaking out of spent batteries will damage the unit.
- Never recharge dry-cell batteries!
- Do not expose the flash unit or battery charger to dripping or splashing water!
- Protect the flash unit from excessive heat and humidity! Do not store the flash unit in the glove compartment of a car!
- Never place material that is impervious to light in front of, or directly on, the reflector screen. The reflector screen must be perfectly clean when a flash is fired. The high energy of the flash light will burn the material or damage the reflector screen if this is not observed.
- Do not touch the reflector screen after a series of flash shots. Danger of burns!
- Never disassemble the flashgun! DANGER: HIGH VOLTAGE!

- There are no components inside the flashgun that can be repaired by a layperson.
- When taking a series of flash shots at full light output and fast recycling times as provided by NiCad battery operation, make sure to observe an interval of at least 10 minutes after 15 flashes, otherwise the flash unit will be overloaded.

2. Preparing the flash unit for use

2.1 Mounting the flash unit on the camera

 **Before mounting or removing the flash unit, switch off both the camera and the flash unit!**

The mecablitz can only be mounted on the camera with the SCA 301 standard foot or an SCA 3xx/SCA 3xx2 adapter (optional extra).

As standard, the mecablitz is fitted with the SCA 301 foot for simple flash synchronisation. The shutter speed must be the same or slower than the X sync speed. The „Set“ version is supplied with the corresponding SCA adapter in place of the SCA 301 standard foot.

Mounting the standard foot or SCA adapter:

 **Be sure to switch off the mecablitz by its main switch prior to mounting or removing the standard foot or SCA adapter.**

- Hold the cover plate (only when using the SCA 3xx2 adapter) in the middle and withdraw.
- Push the SCA adapter or the SCA 301 standard foot all the way in.

Removing the standard foot or SCA adapter:

- Turn off the mecablitz with its main switch ② (Fig. 1).
- Push the battery compartment lid ⑩ (Fig. 3) down and fold open.
- Press the coloured unlocking button ⑮ (Fig. 3) and simultaneously withdraw the SCA adapter or standard foot.

Mounting the mecablitz:

Insert the mecablitz in the camera's accessory shoe and lock into position with the locking screw.

2.2 Power supply


2.2.1 Suitable batteries

The mecablitz can be operated with any of the following batteries:

- 4 NiCad batteries, type IEC KR 15/51.
They permit fast recycling and are economical in use because they are rechargeable.
- 4 nickel-metal-hydride batteries.
Significantly higher capacity than NiCad batteries and less harmful to the environment (no cadmium).
- 4 alkaline-manganese batteries, type IEC LR6.
Maintenance-free power source for moderate power requirements.
- Power Pack P 40 (optional accessory)
Offers microprocessor-controlled battery monitoring and charge level indication (with discharge function).
- Power Pack P 50 (optional accessory)
Offers microprocessor-controlled battery monitoring and charge level indication (with discharge function).

2.2.2 Exchanging batteries

- Switch off the mecablitz with its main switch ① (Fig. 1).
- Push the battery compartment lid ⑩ (Fig. 3) down and fold open.
- Insert the batteries in conformity with the indicated battery symbols and close the battery compartment cover.

 **CAUTION: When loading batteries ensure correct polarity as indicated by the symbols on the battery compartment lid ⑩. Exhausted batteries must not be thrown in the dustbin! Help protect the environment and dispose of exhausted batteries at the appropriate collecting points.**

2.3 Switching the flash unit on and off

The flash unit is switched on with the main switch ② (Fig. 1). In the upper On position, the flash unit is permanently⁶⁾ on and the flash ready ⑥ (Fig. 1) indicator is lit.

⁶⁾ see also „12.3 Automatic shut-off“

 **When a key appears on the LC display, please refer to „12.2 Locking and unlocking the controls“.**

To turn off the flash unit push the main switch ② (Fig. 1) down to the bottom position. If your mecablitz is not going to be used for an extended period of time, we recommend the following:

- Switch off the flash unit with the main switch ② (Fig. 1).
- Remove the power source (batteries).

2.4 Operating concept

2.4.1 Selecting and setting the flash mode TTL / A / M /

⚡⚡⚡ (stroboscopic)

Select the flash mode TTL, A (Auto), M (Manual) or ⚡⚡⚡ (stroboscopic) by depressing the **Mode** button ① (Fig. 1) repeatedly until the icon of the required mode flashes on the display. Push the setting disk ⑤ (Fig. 1) in the direction of the arrow for storage.

The selected operating mode will be automatically stored after approx. 5 seconds if the setting disk ⑤ (Fig. 1) is not pressed. After storage the icon of the selected mode will be continuously displayed (without flashing).

Note: The individual flash modes are explained in a separate chapter!

2.4.2 Selecting and setting the special functions

Additional special functions can be selected in each flash mode with the **Select** button ④ (Fig. 1).

By depressing the **Select** button you can call the special functions "Bleep" (⏏), automatic switch-off ⏏, REAR⁷⁾ (second-curtain synchronisation), modelling light ⚡⚡⚡, zoom formats and flash bracketing "Fb".

⁷⁾ only with SCA adapter and camera which support this function

The icon of the given function flashes after the special function has been set, and the functional status (OFF or On) is shown on the LC display.

The selected function is switched on or off by turning the setting disk ⑤ (Fig. 1).


The set function is stored by pressing the setting disk ⑤ (Fig. 1).

Note: The individual flash modes are explained in a separate chapter!

2.4.3 Setting ISO / Zoom / Aperture Ⓢ, „P“ Partial Light Output and EV (flash exposure correction)

Turn the setting disk ⑤ (Fig. 1) to select the required function (ISO / Zoom / Flash Exposure Correction „EV“) on the right-hand side of the LC display. The selected function is indicated by an arrow ▶.

Push the setting disk ⑤ (Fig. 1) in the direction of the arrow to change the function. The arrow ▶ on the LC display will flash. Change the status by turning the setting disk. To store press the setting disk in the direction of the arrow. The selected setting will be automatically stored after approx. 5 seconds if the setting disk is not pressed. The arrow at the selected position will stop flashing after storage.


 **When operating the mecablitz with an SCA 3xx2 adapter it may not be possible to change the f-stop (depending on the camera type and SCA adapter)!**

When operating the mecablitz with an SCA 3xx2 adapter it may not be possible to change the ISO film speed, or the ISO film speed may not be displayed (depending on the camera type and SCA adapter)!

Note: The individual settings are explained in a separate chapter!

3. TTL flash mode

The TTL flash mode is a very simple way to achieve excellent flash shots.

 **The mecablitz must be fitted with a suitable SCA adapter for TTL flash mode. TTL flash mode is only possible with cameras supporting this mode! The SCA 301 standard foot (only hot-shoe contact or synch cord socket) does not permit TTL flash mode! If the mecablitz is used in conjunction with a camera or SCA adapter that does not support the**

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TTL function, then uncontrolled full-power flashes will be fired when the shutter release is pressed! The TTL function can only be tested if a film has been loaded in the camera!

In TTL mode, the exposure readings are taken by a sensor built into the camera. This sensor measures the light reaching the film through the camera lens. An electronic control circuit within the camera transmits a stop signal to the SCA adapter (optional extra) as soon as the film has been exposed by the correct amount of light, thereby instantly interrupting the flash.

The advantage of this flash mode is that all factors influencing correct exposure of the film (filters, change of aperture and focal length with zoom lenses, extensions for close-ups, etc.) are automatically taken into account.

The „ok“ display on the mecablitz lights up for approx. 3 sec. when flash exposure was correct.

☞ ***An additional acoustic signal can be activated on the mecablitz; see „12.1 Bleep function“.***

Setting procedure for the TTL flash mode:

- Equip the mecablitz with a suitable SCA adapter and mount on the camera.
- Adjust the camera as described in its operating manual.
- Switch on the mecablitz with the main switch ② (Fig. 1).
- Depress the **Mode** button ① (Fig. 1) repeatedly until **TTL** flashes on the display. Push the setting disk ⑤ (Fig. 1) in the direction of the arrow to store this setting. The selected operating mode will be automatically stored after approx. 5 seconds if the setting disk is not pressed. The **TTL** icon will stop flashing and will be continuously displayed after storage.
- It is possible that ISO film speed, zoom and f-stop will not be automatically transmitted from the camera to the mecablitz, depending upon the camera type and SCA adapter. In this case simply set the corresponding values manually on the mecablitz. ISO film speed and f-stop are only required for correct distance and flash range indication on the LC display and are therefore irrelevant for TTL flash shots. Consequently, it is not imperative to set them.

- Zoom reflector positioning is important for the correct illumination of the entire subject. It should therefore always be adapted to the focal length of the lens.

Tip:

If you are using a zoom lens and do not constantly need the full power and maximum flash range of the mecablitz, you can leave the zoom reflector at the shortest focal length of the zoom lens. In this manner the entire subject will be uniformly illuminated, thereby also eliminating the need to constantly adapt the zoom reflector position to the given focal length.

Example:

Let us assume that you are using a 28 mm - 80 mm zoom lens. In this case you set the zoom reflector to position 28 mm!

☞ ***If the mecablitz is used with an SCA 3xx2 adapter on a camera that transmits data to the flash unit, it can happen that the ISO speed rating is not displayed (depending on the camera model); see the operating instructions for the SCA adapter. It may then be impossible to change the ISO film speed and aperture! With wide differences in contrast, e.g. a dark object in the snow, corresponding exposure corrections may be necessary in TTL mode (see Chapter 14.).***




3.1 Sub-modes of TTL flash mode

Different flash sub-modes can be set when the mecablitz is in TTL mode.

☞ ***The number of possible sub-modes depends on the SCA adapter and the given camera:***

- TTL-remote with address „Ad1“
(see Chapter „7.1 Metz cordless TTL remote mode“).
- TTL-remote with address „Ad2“
(see Chapter „7.1 Metz cordless TTL remote mode“).
- E-TTL flash mode (only with SCA 3102 and a suitable Canon camera; see operating instructions for the SCA adapter and the camera).
- E-TTL-HSS flash mode; high-speed synchronisation (only with SCA 3102 and a suitable Canon camera; see operating instructions for the SCA

adapter and the camera).

- Matrix-controlled fill-in flash  (only with SCA 3402 and a suitable Nikon camera; see operating instructions for the SCA adapter and the camera).
- 3D multi-sensor fill-in flash  (only with SCA 3402 and a suitable Nikon camera; see operating instructions for the SCA adapter and the camera).
- TTL-HSS flash mode; high-speed synchronisation  (only with SCA 3302 and a suitable Minolta camera; see operating instructions for the SCA adapter and the camera).

Setting a sub-mode of TTL flash mode:

- Depress the **Mode** button ① (Fig. 1) repeatedly until **TTL** flashes on the display. In the event that **TTL** no longer flashes, just press the **Mode** button once.
- Turn the setting disk ⑤ (Fig. 1) and select the required sub-mode.
- Push the setting disk ⑤ (Fig. 1) in the direction of the arrow for storage. The selected sub-mode will be automatically stored after 5 seconds if the setting disk is not pressed. The **TTL** icon will stop flashing after storage.


4. Automatic flash mode

In the auto flash mode a sensor ⑩ (Fig. 2) built into the mecablitiz measures the light reflected off the subject. The flash is cut off as soon as sufficient light has been emitted for correct exposure. This eliminates the need to recalculate and reset the aperture each time the distance is changed, provided that the subject remains within the indicated maximum flash range.


The sensor ⑩ (Fig. 2) of the mecablitiz must be directed at the subject, regardless of the direction in which the main reflector is pointing. The sensor has a coverage of 25°, and only measures during light emission by the mecablitiz.

The „ok“ display on the mecablitiz lights up for approx. 3 sec. when flash exposure was correct.

The automatic flash mode is possible with an SCA adapter and with the SCA 301 standard foot.

 ***Some cameras will not support the mecablitiz in automatic flash mode when an SCA adapter is used (see operating instructions for the given camera and SCA adapter). In this case the mecablitiz should be fitted with the SCA 301 standard foot.***

Setting procedure for automatic flash mode:

- Equip the mecablitiz with an SCA adapter or the SCA 301 standard foot and mount on the camera.
 - Adjust the camera as described in its operating manual.
 - Switch on the mecablitiz with the main switch ② (Fig. 1).
 - Depress the **Mode** button ① (Fig. 1) repeatedly until **A** flashes on the display. Push the setting disk ⑤ (Fig. 1) in the direction of the arrow for storage. The selected operating mode will be automatically stored after approx. 5 seconds if the setting disk is not pressed. The **A** icon will stop flashing and remain permanent after storage.
 - If the mecablitiz is used with an SCA 3xx2 adapter and a camera that automatically transmits the data for ISO film speed, zoom reflector position and aperture, then no further settings are required. The mecablitiz will automatically adjust itself in conformity with the transmitted camera data.
-  ***When the mecablitiz is operated with a camera that transmits data to the mecablitiz, it can happen that the ISO film speed will not be displayed (depends on the camera type); see operating instructions for the SCA adapter. It may then be impossible to change the ISO film speed and aperture setting!***

Automatic flash mode with an SCA 3xx adapter or the SCA 301 standard foot:

In this case ISO film speed, zoom reflector position and aperture must be manually set on the mecablitiz. This is indispensable for correct flash exposure because the mecablitiz automatically controls the light on the basis of these data.

Tip:

If you are using a zoom lens and do not constantly need the full power and maximum flash range of the mecablitz, you can leave the zoom reflector at the shortest focal length position of the zoom lens. In this manner the entire subject will be uniformly illuminated, thereby eliminating the need to constantly adapt the zoom reflector position to the given focal length.

Example:

Let us assume that you are using a 28 mm – 80 mm zoom lens. In this case you set the zoom reflector to position 28 mm!

🔧 **The subject should be located within about 40 % and 70 % of the distance range indicated on the mecablitz LC display. This gives the electronic system sufficient leeway for compensation.**

Caution with zoom lenses!

Depending on their design, zoom lenses can cause a loss of light in the order of up to one f-stop. Moreover, the effective aperture may vary with the focal length settings. This can be compensated by correcting the aperture value on the flashgun manually or by manual flash exposure correction (see Chapter 14.).

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4.1 Sub-modes of the automatic flash mode

Different sub-modes can be set when the mecablitz is in auto flash mode **A**:

- Auto-remote with address „Ad1“
(see Chapter „7.1 Metz cordless auto remote mode“)
- Auto-remote with address „Ad2“
(see Chapter „7.1 Metz cordless auto remote mode“)

Setting a sub-mode of the automatic flash mode:

- Depress the **Mode** button ① (Fig. 1) repeatedly until **A** flashes on the display.
- Turn the setting disk ⑤ (Fig. 1) to set the desired sub-mode.
- Push the setting disk ⑤ (Fig. 1) in the direction of the arrow for storage.

The selected sub-mode will be automatically stored after approx. 5 seconds if the setting disk is not pressed. After storage, icon **A** will stop flashing.

5. Manual flash mode

In this mode, the flash unit will emit the full light energy if partial light output has not been set. The mecablitz must be fitted with an SCA adapter or the 301 standard foot. Adaptation to the given photographic situations is by setting the corresponding aperture on the camera and by selecting a partial light output level.

The LC display of the mecablitz indicates the flash-to-subject distance for correct flash exposure. It is therefore necessary to ensure that the mecablitz is correctly adjusted. The aperture and ISO film speed set on the camera must be identical to the aperture and ISO film speed setting on the mecablitz! The flash reflector's zoom position must be adapted to the focal length of the lens!

Setting procedure for manual flash mode:

Setting example:


Flash-to-subject distance: 6 m; zoom 50 mm; film speed ISO 100/21°.

- Adjust the camera as indicated in the operating instructions.
- Equip the flash unit with the SCA 301 standard foot or the SCA adapter and mount on the camera.
- Switch on the mecablitz with the main switch ② (Fig. 1).
- Depress the **Mode** button ① (Fig. 1) repeatedly until **M** flashes on the display. Push the setting disk ⑤ (Fig. 1) in the direction of the arrow for storage. The selected operating mode will be automatically stored after approx. 5 seconds if the setting disk is not pressed. After storage the **M** icon will stop flashing and remain permanent.
- The display indicates the light output „P 1/1“ (= full light output) after storage. A full-power flash is fired when pressing the firing button ⑥ (Fig. 1) on the mecablitz or the camera's shutter release.

🔧 **Some cameras will not support the mecablitz with an SCA adapter when it is in manual mode (see operating instructions for the given camera and SCA adapter). In this event the mecablitz should be equipped with the SCA 301 standard foot (see also operating instructions for the given camera).**

Manual flash mode of the mecablitz with an SCA 3xx2 adapter:

If the mecablitz is operated with an SCA 3xx2 adapter and a camera that automatically transmits the parameters for ISO film speed, zoom reflector position and aperture, then no further settings are required. The mecablitz will automatically adjust itself in conformity with the data transmitted by the camera.

 ***If the mecablitz is used on a camera that transmits data to the mecablitz, it can happen that the ISO film speed will not be displayed (depends on the camera type); see the operating instructions for the SCA adapter. If the mecablitz is being operated with a camera that transmits data to the flash unit, it is impossible to change the values for ISO film speed and aperture! In this event continue changing the f-number on the camera until the required distance is indicated on the LC display of the mecablitz.***

Manual flash mode with the SCA 3xx adapter or the SCA 301 standard foot:

In this case the corresponding ISO film speed, zoom reflector position and aperture parameters must be manually set on the mecablitz. This is indispensable for correct flash exposure because the mecablitz calculates and displays the flash-to-subject distance required for a correct exposure on the basis of these data.

Setting partial light output:

Partial light output can be set on the mecablitz if you wish to change the distance range given for correct flash exposure in order to adapt it to the existing picture-shooting situation:

- Continue turning the setting disk ⑤ (Fig. 1) until the arrow symbol appears next to **P** on the display.
- Push the setting disk ⑤ (Fig. 1) in the direction of the arrow. The arrow symbol starts flashing.
- Turn the setting disk to set the required partial light output level. Press the setting disk in the direction of the arrow for storage. The selected partial light output will be automatically stored after approx. 5 seconds if the setting disk is not pressed. After storage the arrow symbol stops flashing.

Another possibility to modify the distance range for adaptation to the individual picture shooting situation is to change the aperture on the camera. You must, however, take into account that a change of the camera's aperture also influences the picture's depth-of-field.

Deleting the set partial light output:

- Turn the setting disk ⑤ (Fig. 1) until the arrow symbol appears next to **P** on the display.
- Push the setting disk ⑤ (Fig. 1) in the direction of the arrow. The arrow symbol starts flashing.
- Turn the setting disk ⑤ (Fig. 1) to select partial light output **P 1/1**. Push the setting disk in the direction of the arrow for storage. Storage is automatic after 5 seconds if the setting disk is not pressed. The arrow symbol will stop flashing after storage. The partial light output is set to **P 1/1** when changing to another flash mode.

5.1 Sub-mode of the manual flash mode

The mecablitz must be fitted with an SCA 3xx2 adapter!

Various cameras offer the possibility of high-speed synchronisation (FP and HSS flash mode) when the mecablitz is in manual flash mode M (see operating instructions of the given camera and SCA adapter).

Setting the „M-HSS“ sub-mode of the manual flash mode:

- Continue depressing the **Mode** button ① (Fig. 1) until **M** flashes on the display.
- Turn the setting disk ⑤ (Fig. 1) to set **HSS**.
- Push the setting disk in the direction of the arrow for storage. **HSS** will be automatically stored after approx. 5 seconds if the setting disk is not pressed. The **M** icon will stop flashing after storage.

Deactivating the „HSS“ mode:

- Press the **Mode** button ① (Fig. 1) repeatedly until **M** flashes on the display.
- Turn the setting disk ⑤ (Fig. 1) to cancel **HSS**.
- Press the setting disk in the direction of the arrow for storage. Storage will

be automatic after 5 seconds if the setting disk is not pressed. The **M** icon will stop flashing after storage.

6. Bounce flash

Photos shot with full frontal flash are easily recognized by their harsh, dense shadows. This is often associated with a sharp drop in light from the foreground to the background.


This phenomenon can be avoided with **bounce** flash because the diffused light will produce a soft and uniform rendition of both the subject and the background. For this situation the reflector is turned in such a manner that the flash is bounced off a suitable reflective surface (e.g. ceiling or walls of the room).

The reflector can be turned vertically and horizontally.

Vertical positions: -7°, 0°, 60°, 75°, 90°

Horizontal positions: -180°, -150°, -120°, -90°, -60°, -30°, 0°, 30°, 60°, 90°.

The reflector head is mechanically **interlocked** in its **basic position**. Press the pushbutton to unlock and turn the reflector head.

GB  *When turning the reflector vertically or horizontally, it is essential to ensure that it is moved by a sufficiently wide angle so that direct light can no longer fall on the subject. Consequently, always turn the reflector at least to the 60° lock-in position. The distance readings on the LC display will disappear. The flash-to-subject distance via the ceiling or wall is an unknown magnitude.*


The light bounced off the reflecting surfaces produces a soft and uniform illumination of the subject.



The reflecting surface must be white or have a neutral colour, and it must not be structured, e.g. wooden beams in a ceiling, as these might cast shadows. For colour effects just select the reflective surface in the desired colour.

Use the secondary reflector to avoid disturbing dense shadows that are formed by bounce flash, for instance under the nose and in the eye sockets for portraiture.

6.1 Bounce flash with secondary reflector


The secondary reflector ⑨ (Fig. 1) produces frontal fill-in light when the flash is bounced.

 *Use of the secondary reflector is only meaningful in bounce flash photography.*

The secondary reflector is switched on and off with switch  ⑫ (Fig. 2). A flashing  symbol on the LC display of the mecablitz merely indicates that the main reflector has not yet been turned.

Activation of the secondary reflector assigns approx. 85 % of the emitted light to the main reflector and 15 % to the secondary reflector. These %-values can differ somewhat when shooting with partial light output and secondary reflector.

The light output of the secondary reflector can be reduced by approx. 50 % with a light reducing filter if it is too bright. For this purpose shift the light reducing filter sideways, remove from the mecablitz, turn by 180°, place over the secondary reflector and push down until it audibly clicks into position.

 *The sub-modes ADI, stroboscope, E-TTL, E-TTL-HSS, D-TTL, 3D multi-sensor and TTL-HSS are not possible in conjunction with the secondary reflector.*

6.2 Bounce flash in automatic and TTL flash mode

Prior to picture taking it is advisable to check whether sufficient light is available for the selected aperture. For this purpose proceed in the manner described in Chapter „10. Correct exposure indication“.

6.3 Bounce flash in manual flash mode

The required aperture on the camera in the manual flash mode is best established with a flash meter. If a flash meter is not available, observe the following rule of thumb

$$\text{Camera aperture} = \frac{\text{guide number}}{\text{flash-to-subject distance} \times 2}$$

to establish a guide value for the aperture that can then be varied by ± 1 f-stop for the shot to be taken.


7. Remote mode

General

In the remote mode, additional flash units (slaves) are fired under the cordless control of the master flash unit (controller) mounted on the camera. The controller extends TTL automatic exposure control to all slaves.


The Metz TTL remote mode enables joint cordless TTL flash control of several flash units of the types 54 MZ-..., 34 CS-2, 28 CS-2, 40 MZ-..., 50 MZ-5 and 70 MZ-... For this mode all additional 54 MZ-.. and 70 MZ-4 flash units (slaves) must be fitted with an SCA 3083 slave adapter (optional extra), and all 40 MZ-.. slaves with the SCA 3080 or 3082 slave adapter. The slave flash units can be mounted on the foot supplied with the slave adapter or on a tripod.

The slave flash units 34 CS-2, 28 CS-2, 50 MZ-5 Slave and 70 MZ-5 do not require a slave adapter.

 **The LC display of the mecablitz does not indicate the maximum flash range when in remote mode. The secondary reflector of the mecablitz must be switched off!**

To ensure that two TTL remote systems in neighbouring rooms do not interfere with each other, two different addresses - Ad1 and Ad2 - can be selected on the controller (master) and the slave unit.

7.1 Metz cordless TTL remote mode

 **The Metz TTL remote mode is only possible with cameras featuring TTL flash control!**

Setting procedure for Metz TTL remote controller operation (Fig. 4):


- 1 Equip the flash unit mounted on the camera with the appropriate SCA adapter and turn on with the main switch.
- 2 Depress the **Mode** button ① (Fig. 1) repeatedly until **TTL** flashes on the display.
- 3 While the **TTL** mode is flashing, turn the setting disk ⑤ (Fig. 1) and select the address **Ad1** or **Ad2** for the **Co** controller mode. Depress the **Mode** but-


ton in the event that **TTL** is no longer flashing. Briefly press the setting disk in the direction of arrow for storage. The selected setting will be automatically stored after 5 seconds if the setting disk is not pressed. **TTL** will then be permanently displayed (without flashing), together with **Co** and the slave address **Ad1** or **Ad2**.

Setting procedure for Metz TTL remote slave operation (Fig. 5):


- Equip the 54 MZ-..., 70 MZ-4 slave flash units with an SCA 3083 slave adapter, and the 40 MZ-.. slave flash unit with an SCA 3080 or 3082 slave adapter.

- 1 Switch on the mecablitz with the main switch ② (Fig. 1). The mecablitz is automatically set to **TTL** mode, and **SL** (slave mode) is indicated on the LC display. The adjusted slave address is **Ad1** (or the last selected address).
- 2 If you wish to change the slave address, press the **Mode** button ① (Fig. 1). The **TTL** mode icon will then flash.
- 3 Turn the setting disk ⑤ (Fig. 1) and select **Ad2**. Push the setting disk in the direction of the arrow for storage.

 **When in remote mode, the power zoom reflector of the mecablitz is automatically adjusted to the 24 mm position in order to achieve the widest possible illumination. This reflector position can be manually changed (see Chapter 12.).**

- When flash readiness is reached, the flash-ready indicator of the slave lights up and the AF measuring beam starts flashing. An additional acoustic signal (bleep) can be activated to indicate flash readiness (see Chapter 12.). This is useful when there is no visual contact with the AF measuring beam or the flash-ready indicator.
- 4 Press the manual firing button  ⑥ (Fig. 1) of the mecablitz controller mounted on the camera to fire a test flash.
- The slave will respond with a delayed flash to indicate that it is ready for operation. When several slave units are operated, then all slaves will acknowledge flash readiness simultaneously.
If a slave does not respond by firing a delayed flash, then this means that the sensor in the adapter did not receive the light pulse. Turn the sensor in


the direction of the controller and repeat the procedure described in step 4.

-  **A particularly short distance between controller and slave unit may cause the camera's electronic system to cut off the flash before the slave has received its light pulse. In such an event widen the distance between the controller and slave or select a higher f-number and repeat procedure No. 4.**

Deactivating the Metz TTL remote mode:


- Press the **Mode** button ① (Fig. 1) on the controller and deactivate the controller mode with the setting disk ⑤ (Fig. 1).
- On the slave:
Switch off the flash unit, remove the SCA 3083 slave adapter, and finally switch on the flash unit again.

7.2 Metz cordless auto remote mode

-  **The Metz auto remote mode can be used with system, standard, old mechanical and medium-format cameras. The only precondition is that all cameras feature a synch contact/socket and that the flash unit is equipped with an SCA 301 standard foot or SCA adapter. The exposure is controlled by the sensor of the controller flash unit (master) mounted on the camera.**

Setting procedure for the Metz auto remote controller mode:

- Equip the mecablitz with an SCA adapter or the SCA 301 standard foot, and switch on.
- Switch the camera to manual mode as described in the camera's operating instructions.

-  **Automatic flash mode or auto remote flash mode are not supported by all cameras in conjunction with an SCA adapter (see operating instructions of the camera and the SCA adapter). If a camera, in combination with an SCA adapter, does not support the automatic flash mode, then equip the mecablitz with the SCA 301 standard foot. In this event do not forget to manually transfer the camera settings (ISO, f-stop and zoom position) to the mecablitz!**

- Set a shutter speed of 1/60th sec. or slower.
- Switch on the mecablitz on the camera with the main switch ② (Fig. 1).
- Depress the **Mode** button ① (Fig. 1) repeatedly until **A** appears on the display.
- While the **A** mode is flashing, turn the setting disk ⑤ (Fig. 1) and select the address **Ad1** or **Ad2** for the **Co** controller mode. Depress the **Mode** button in the event that **A** no longer flashes. To store, briefly press the setting disk in the direction of the arrow. The selected setting will be automatically stored after 5 seconds if the setting disk is not pressed. **A** will then be continuously displayed (without flashing), together with **Co** and the slave address **Ad1** or **Ad2**.




Setting procedure for Metz auto remote slave mode:

The setting procedure is the same as for Metz TTL remote slave mode.

The slave flash unit also operates in the TTL mode in the auto remote mode.

7.3 Assessing the overall lighting conditions in remote mode

A modelling light beam of all participating flash units can be fired to assess the overall lighting conditions in A (auto) and TTL remote mode.

For this purpose, the firing button  ⑥ (Fig. 1) of the 54 MZ... mounted on the camera must be programmed. Press the **Select** button ④ (Fig. 1) repeatedly until the mode display  lights up. Turn the setting disk ⑤ (Fig. 1) to set the modelling light function to On or OFF. The modelling light can then be fired with the firing button  ⑥ (Fig. 1); see also Chapter 12.

8. Fill-in flash in daylight

The mecablitz can also be used for fill-in flash in daylight to soften harsh shadows and diminish the contrast, thereby producing a more balanced exposure when shooting against the light (contre-jour). Various possibilities are open to the user for fill-in flash.

8.1 Fill-in flash in TTL mode

The mecablitz must be equipped with a suitable SCA adapter. The camera must be able to support TTL fill-in flash.

- Press the **Mode** button ① (Fig. 1) repeatedly until **TTL** appears on the display.

Most cameras automatically activate fill-in flash when in Full Auto Mode, Intelligent Program AE P, and in Programmed Image Control Modes during daylight (see also operating instructions of camera and SCA adapter). The camera will then automatically ensure a well-balanced illumination of subject and background.

Moreover, some cameras offer a special fill-in flash program which permits pin-pointed use whenever required. Depending upon the camera type, activation is either on the camera or mecablitz (see operating instructions of camera and SCA adapter).

Example: Matrix-controlled fill-in flash (only for certain Nikon cameras)

The mecablitz must be equipped with the SCA 3402 adapter (Nikon)!

Various Nikon cameras support the „Matrix-controlled TTL fill-in flash mode“ (see operating instructions of the given camera and the SCA adapter). This flash mode is a sub-mode of TTL flash mode. Chapter 3.1 describes how it is set.

Example: 3D multi-sensor fill-in flash (only for certain Nikon cameras)


The mecablitz must be equipped with the SCA 3402 adapter (Nikon)!

Various Nikon cameras support the „3D multi-sensor fill-in flash mode“ (see operating instructions of the given camera and the SCA adapter). This flash mode is a sub-mode of TTL flash mode. Chapter 3.1 describes how it is set.

8.2 Fill-in flash in automatic mode

- Switch on the mecablitz with the main switch ② (Fig. 1).
- Depress the **Mode** button ① (Fig. 1) repeatedly until **A** flashes on the display. Push the setting disk ⑤ (Fig. 1) in the direction of the arrow to store this setting. The selected operating mode will be automatically stored after approx. 5 seconds if the setting disk is not pressed. The **A** symbol will

remain permanent and stop flashing after storage.

 **In automatic mode the flash is controlled by the sensor built into the mecablitz. Ensure that backlight does not shine directly on to the sensor as this will confuse the electronics of the flash unit.**

Use the camera's or a hand-held exposure meter, to establish the required aperture and shutter speed for a normal exposure. Ensure that the shutter speed either equals, or is slower than the fastest flash synch speed (varies with different camera models).

Example:

Established aperture = f/8;

Established shutter speed = 1/60th sec.

Flash synch speed of the camera e.g. 1/100th sec.

(see operating instructions for the given camera).

The two established values for aperture and shutter speed can be set on the camera because the camera's shutter speed is slower than the camera's flash sync speed.

To obtain a balanced fill-in light, for instance in order to retain the character of the shadows, it is advisable to select on the flashgun an auto aperture that is one increment lower than the aperture set on the camera. In our example f/8 was set on the camera. Consequently, we advise you to set f/5.6 on the flash unit.

If the mecablitz is fitted with an SCA 3xx2 adapter and the camera automatically transmits the f-stop values to the mecablitz, then manual aperture setting is no longer possible! In this case manual flash-exposure correction can be used in the automatic flash mode (see Chapter 14.).

Manual flash-exposure correction in automatic mode can also be used if the camera does not transmit any data to the mecablitz.

Additional correction of the aperture value is then no longer necessary!

Tip:

If possible, take a meter reading of the subject's background separately from the actual subject. Experience has shown that a correction value of -1 EV (f-stop) to

1 2/3 EV for the auto aperture on the mecablitz produces the best results in fill-in flash mode.

9. Stroboscopic mode (Fig. 6)


Stroboscopic flash mode makes several images of a moving object appear in the same picture. This is particularly interesting for motion studies and for special effects (Fig. 6). In stroboscopic mode, a predetermined number of flashes are fired at a certain flash frequency. Consequently, only a partial light output is available, with a maximum of 1/4 power.

For stroboscopic exposures you can select a flash frequency (flashes per second) of 1...50 Hz in 1 Hz increments, and a number of flashes between 2...50 in single increments.



No ISO film speed is displayed in stroboscopic mode. When using the mecablitz with an SCA 3xx2 adapter and a camera that automatically transmits the speed rating to the flash unit, the mecablitz will automatically adjust the film speed (see operating instructions for camera and the SCA adapter).

When using the mecablitz with an SCA 3xx adapter, the SCA 301 standard foot or a camera that does not transmit film speed data, the speed of the loaded film must be set in TTL, A or M mode before selecting stroboscopic mode. The mecablitz will then take over this setting for the stroboscopic mode.

The maximum possible partial light output level in stroboscopic mode is automatically adjusted. To achieve short flash durations, the partial light output level can be adjusted manually to a minimal value of 1/256. The LC display indicates the shooting distance for correct exposure at the set parameters. You can adjust the displayed distance to the actual shooting distance by varying the f-stop or the partial light output level. The aperture selected on the flash unit must be set on the camera lens. By using faster films (higher ISO number) the shooting distance can be increased.


 **The stroboscopic mode cannot be used when the secondary reflector is switched on.**

Setting procedure for stroboscopic mode (Fig. 7):

- Adjust the camera to manual mode, as explained in the manufacturer's operating instructions, and select the corresponding shutter speed.
- 1 Equip the flash unit with an SCA adapter or the SCA 301 standard foot, and switch on with the main switch ② (Fig. 1).
 - 2 Depress the **Mode** button ① (Fig. 1) repeatedly until  flashes on the display. Press the setting disk ⑤ (Fig. 1) in the direction of the arrow to store this setting. The selected operating mode will be automatically stored after approx. 5 seconds if the setting disk is not pressed. The  icon will stop flashing after storage.

Stroboscopic mode when the mecablitz is fitted with an SCA 3xx2 adapter:

If the mecablitz is operated with an SCA 3xx2 adapter and a camera that automatically transmits the ISO film speed, zoom reflector position and aperture parameters, then no further settings will be necessary. The mecablitz will automatically adjust itself according to the data transmitted by the camera. The number of flashes and the flash frequency must be set as explained in Sections 3 and 4 (see below).


 **If the mecablitz is operated with a camera that transmits data to the mecablitz, then the ISO film speed and the aperture cannot be changed.**

Stroboscopic mode with an SCA 3xx adapter, the SCA 301 standard foot or a camera that does not transmit data (Fig. 7):

In this case the corresponding values for ISO film speed, zoom position of the reflector and the aperture must be manually adjusted on the mecablitz. This is indispensable for correct flash exposure because the mecablitz uses these data to calculate and display the flash-to-subject distance required for correct flash exposure.

- 3 Determine the N number of flashes. To do so, turn the setting disk ⑤ (Fig. 1) until the arrow is in top position. Depress the setting disk and turn to adjust the required N number of flashes. Store this setting by renewed depression of the setting disk.

4 Select the flash frequency f(Hz). Turn the setting disk ⑤ (Fig. 1) anti-clockwise until the arrow is next to f(Hz). Depress the setting disk and turn to select the required flash frequency f(Hz). Store this setting by renewed depression of the setting disk.

 **The distance to the moving subject is used as distance value. To prevent overexposure of the static part of the picture should either be very dark or far behind the moving subject. Best results are achieved with a low ambient light level.**

Ensure that a sufficiently slow shutter speed is set on the camera.

Table 3 specifies the fastest camera shutter speeds for the N - f(Hz) combinations.

10. Correct exposure indication


The correct exposure indicator "o.k." ③ (Fig. 1) only lights up if the picture was correctly exposed in automatic or TTL flash mode.

This gives the user the opportunity to fire a test flash while in automatic flash mode so that the correct aperture can be established beforehand. This is particularly valuable with bounce flash when reflection conditions are difficult to judge. A test flash cannot be fired in TTL mode.

The test flash can be triggered with the manual firing button ⑥ (Fig. 1) provided that this button has not been programmed for „Modelling Light“ (see Chapter 12.).

If the o.k. exposure indicator ③ (Fig. 1) remains dark after the test flash was fired, then adjust the next lower f-number, or diminish the distance to the reflecting surface or subject, and repeat the test flash.

The f-stop established in this manner must also be set on the camera.


 **To trigger a test flash, hold the camera and flash unit in the same manner as for the actual shot!**

This facility can also be used with TTL mode without having to produce test exposures. The flash unit is adjusted to automatic mode, and the correct aperture is then determined with a test flash in the previously described manner. The established aperture is transferred to the camera and the flash unit is

then readjusted to TTL mode.


This procedure is relatively accurate with lenses of medium focal length of between 28 mm and 85 mm. However, in borderline cases, underexposure may result in TTL mode. In such an event the o.k. exposure indicator will remain dark after the shutter has been released. Select the next larger aperture (e.g. f/8 instead of f/11) and have another try.

11. AF measuring beam

 **The AF measuring beam ⑩ (Fig. 2) can only be activated by autofocus cameras that support the AF measuring beam of the flash unit! Some autofocus cameras only support their own built-in AF illuminator (refer to the operating instructions for the given camera). The mecablitz must be fitted with an SCA 3xx2 adapter!**

Please note when selecting the camera's autofocus mode that most cameras only support the AF measuring beam in the „Single AF“ or „One-Shot AF“ mode (see operating instructions for the camera)!

The AF measuring beam is activated by the camera electronics when the ambient lighting conditions are insufficient for automatic focusing. The AF beam projects a striped pattern on to the subject, and the camera uses this pattern to focus automatically. The AF beam has a range of 9 m (with a 50 mm f/1.7 standard lens). Low-speed zoom lenses can significantly curtail the range of the AF measuring beam.


 **Some autofocus cameras have several AF metering fields in addition to the central AF metering area in the camera's viewfinder. The striped pattern of the AF measuring beam only supports the camera's central AF sensor. Consequently it may be necessary to adjust the central AF sensor manually on the camera (see the operating instructions for the given camera and the SCA adapter).**

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12. Special functions

The special functions of the mecablitz can be called, one after the other, by depressing the **Select** button ④ (Fig. 1), and they can be set, switched off and stored with the setting disk ⑤ (Fig. 1).

12.1 Bleep function (acoustic alarm)

The bleep function  is used to acoustically indicate certain mecablitz functions. It enables the photographer to concentrate fully on the subject without being distracted by the need to observe additional visual status displays!

The bleep function acoustically indicates the following:

- Flash readiness
- Correct flash exposure
- Automatic shut-off of the flash
- Incorrect operation

Acoustic signal after the mecablitz has been switched on:

- A brief (approx. 2 sec.) uninterrupted bleep signal after the mecablitz has been switched on indicates flash readiness.


Bleep signals after exposure:

- A brief (approx. 2 sec.) uninterrupted bleep signal immediately after shooting indicates that exposure was correct and that flash readiness continues. If there is no bleep signal immediately after shooting the picture was underexposed.
- An intermittent bleep signal immediately after shooting confirms correct flash exposure, but flash readiness will only be re-established after a subsequent (3 sec.) continuous bleep.


Bleep signals associated with settings in „A“ automatic mode:

- A short bleep as an acoustic alarm is generated in the auto flash mode of the mecablitz if the selected aperture and ISO setting exceed the permissible light control range. The auto aperture of the mecablitz is then automatically adjusted to the next permissible value.

Setting the bleep function (Fig. 9):


- 1 Press the **Select** button ④ (Fig. 1) repeatedly until the  icon flashes.
- 2 Turn the setting disk ⑤ (Fig. 1) and switch on the bleep function. „On“ appears on the LC display of the mecablitz. This setting will be stored when the setting disk is briefly pushed in the direction of the arrow. The selected setting will be automatically stored after 5 seconds if the setting disk is not pushed.


Deactivating the bleep function (Fig. 9):

- 1 Press the **Select** button ④ (Fig. 1) repeatedly until the  icon flashes.
- 2 Turn the setting disk ⑤ (Fig. 1) and switch off the bleep function. „OFF“ will then appear on the LC display of the mecablitz. Push the setting disk briefly in the direction of the arrow to store this setting. The selected setting is automatically stored after 5 seconds if the setting disk is not pushed.

12.2 Locking and unlocking the controls (key function)

The key function locks the **Mode** and **Select** buttons, as well as the setting disk, from inadvertent resetting.

To lock the **Mode** and **Select** buttons press them simultaneously for approx. 3 seconds until the  key icon appears on the display.

To unlock the **Mode** and **Select** buttons press them simultaneously for approx. 3 seconds until the  key icon disappears from the display.

12.3 Automatic shut-off (Afb. 8)

To protect the batteries from unintentional discharge, the mecablitz can be set to automatically switch off 1 minute or 10 minutes after the flash was activated for the last time (flash shot, setting procedure or tripping the camera's shutter release).

The last used mode is retained after automatic shut-off so that it becomes instantly available when the flash unit is switched on again.

If the mecablitz is equipped with the SCA 3xx2 adapter, it can be switched on again merely by touching the camera's shutter release.

If the mecablitz is equipped with an SCA 3xx adapter or the SCA 301 stand-

ard foot, it can be switched on again merely by actuating the setting disk.

Setting automatic shut-off (Fig.8):

- 1 Press the **Select** button ④ (Fig. 1) of the mecablitz repeatedly until the clock icon ⌚ flashes.
- 2 Turn the setting disk ⑤ (Fig. 1) to select the „Auto shut-off time“ 1m (1 minute) or 10m (10 minutes). „On“ is additionally displayed. Briefly press the setting disk in the direction of the arrow for storage. The selected setting will be automatically stored after 5 seconds if the setting disk is not pressed. The clock icon ⌚ will then appear on the LC-display of the mecablitz.

🔧 **Switch off the mecablitz by its mains switch if it is not going to be used for an extended period of time!**

Deactivating automatic shut-off:

- 1 Repeatedly depress the **Select** button ④ (Fig. 1) until the clock symbol ⌚ flashes. Turn the setting disk until „OFF“ is displayed. Press the setting disk briefly in the direction of the arrow to store this setting.
- 2 The selected setting is automatically stored if the setting disk is not pressed within 5 seconds. The clock symbol ⌚ on the LC display of the mecablitz is deleted.

12.4 REAR – Second curtain synchronisation (Fig. 10 and 11)

Second curtain synchronization (REAR) is particularly advantageous when using slow shutter speeds (slower than 1/30 s) or when shooting moving objects that have their own source of light. Second curtain synchronisation gives a more realistic impression of movement because the light streaks behind the light source instead of building up in front of the source, as is the case when the flash is synchronised with the 1st shutter curtain.

🔧 **The REAR function can only be used if the mecablitz is fitted with an appropriate SCA adapter and is mounted on a camera that supports this function. The camera must be switched on to select and set this function. The camera's shutter release must be briefly touched at least once so that the corresponding data can be exchanged between the camera and the mecablitz and the attached SCA adapter.**

Please refer to the respective operating instructions to find out whether or not the camera and the SCA adapter support the REAR function.

On some cameras the REAR function is not possible in certain operating modes so that it cannot be selected. It will then be automatically deleted. Please refer to the respective operating instructions for the given camera and the SCA adapter!

Switching on the REAR function:

- Press the **Select** button ④ (Fig. 1) repeatedly until „REAR“ appears on the LC display. Adjust „On“ with the setting disk. Push the setting disk in the direction of the arrow to store the REAR function. The selected setting will be automatically stored after 5 seconds if the setting disk is not pushed.

After the REAR function has been set, the „REAR“ symbol for second curtain synchronisation will be indicated on the LC display of the mecablitz.

Tip:

Mount the camera on a tripod for this mode to avoid camera shake with slow shutter speeds.

🔧 **Turn off this function after shooting, otherwise unwanted slow shutter speed could result in camera shake with „normal“ flash shots in the P camera mode or in the programmed image control modes of the camera.**

The „REAR“ function can be directly set on some cameras. In this case, however, the mecablitz will not display „REAR“.

Deactivating the REAR function:



- Repeatedly press the **Select** button ④ (Fig. 1) until „REAR“ appears on the LC display. Adjust „OFF“ with the setting disk. Press the setting disk in direction of the arrow for storage. The setting will be automatically stored after 5 seconds if the setting disk is not pressed. The REAR symbol on the LC display of the mecablitz is deleted.



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12.5 Modelling light ML

The modelling light is a sequence of stroboscopic flashes at high frequency during approx. 4 seconds which give the impression of permanent light. Modelling light enables the user to assess light distribution and shadow formation before taking pictures.

Setting the modelling light function:




- Repeatedly depress the **Select** button  (Fig. 1) until the  icon flashes on the LC display. Select „On“ with the setting disk. Push the setting disk in direction of the arrow to store the function. The modelling light function will be automatically stored after 5 seconds if the setting disk is not pressed.


If an SCA 3xx2 adapter is used, the flash ready indicator  (Fig. 1) flashes on the mecablitz to indicate that the modelling light function has been activated. The modelling light is triggered by the mecablitz when the  button is pressed.

In Metz REMOTE mode (TTL and Auto REMOTE), triggering the controller's modelling light will cause the modelling light on all slaves to be fired simultaneously (with 40 MZ... in combination with the SCA 3080 adapter as from version M1 or an SCA 3082 adapter).

A fully charged set of batteries (600 mAh) is sufficient to trigger the modelling light approx. 60 times. Dry-cell batteries are not recommendable for the modelling light mode because their higher internal resistance impedes the fast supply of power required by the flash capacitor.

Deactivating the modelling light function:

- Depress the **Select** button  (Fig. 1) repeatedly until the  icon flashes on the LC display. Select „OFF“ with the setting disk. Press the setting disk  (Fig. 1) in direction of the arrow for storage. The setting will be automatically stored after 5 seconds if the setting disk is not pressed.

The flash ready indicator  (Fig. 1) lights permanently on the mecablitz.

12.6 Adapting the focal length to the camera format

This function enables the user to adapt the indicated zoom reflector position of the mecablitz to the camera format. Consequently, the focal length of lenses of medium-format cameras (4.5x6, 6x6, 6x7 and 6x9) or APS cameras can be matched to the value displayed on the mecablitz. For 35 mm (24x36) cameras, the Extended-Zoom function is additionally available.


The Extended-Zoom mode reduces the focal length of the mecablitz by one increment as compared to the focal length of the camera lens. This results in a wider illumination and additional diffused light (reflections) in rooms, which, in turn, produces a softer flash illumination.

Example of Extended-Zoom mode:

The focal length of the camera lens is 50 mm.

In the Extended-Zoom mode the mecablitz adjusts the reflector position to 35 mm.

Setting procedure to adapt the focal length to the camera format (Fig. 12):

- 1 Depress the **Select** button repeatedly until „Zoom“ appears on the display.
- 2 Turn the setting disk  (Fig. 1) to adapt the focal length to the given camera format:

Key to the displays:

Zoom without additional display = Setting for 35 mm format (= normal setting).

Auto Zoom with the following additional displays:


E Extended-Zoom mode (only for 35 mm cameras) (Fig. 12)

APS Adaptation to APS cameras

F1 Adaptation to medium format cameras: 4.5x6

F2 Adaptation to medium format cameras: 6x6, 6x7 or 6x9

 Informs that the Extended Zoom mode has been activated.

- Having selected the required setting, press the setting disk  (Fig. 1) in the direction of the arrow for storage. The selected setting is automatically stored after 5 seconds if the setting disk is not pressed. The setting is retained after the mecablitz has been switched off.

The  symbol that appears on the LC display of the flash unit after storage

indicates that one of the afore-listed focal length adaptations is set.

12.7 Flash bracketing "Fb" (Fig. 13)

A series of flash exposures known as flash bracketing / flash exposure bracketing can be made with the mecablitz 54 MZ-.. in the TTL and A modes.

A flash bracketing series consists of three successive flash shots with different flash exposure correction values. The first shot in the series is taken without a correction value, the second one with a minus correction, and the third one with a plus correction. The mode is automatically cancelled after the third shot.


„Fb“ flash bracketing in TTL mode:

Flash bracketing in TTL mode is only possible if the mecablitz is fitted with a suitable SCA adapter (SCA 3xx2) and if the camera supports manual flash exposure with the mecablitz.

If the camera does not support manual flash exposure, a correction factor for flash bracketing can be set on the mecablitz, but the camera will expose the pictures without such correction. Please refer to the operating instructions for the given camera and the SCA adapter!

„Fb“ flash bracketing in A mode:

For flash bracketing in A mode, it is sufficient if the mecablitz is equipped with an SCA 301 standard foot. However, flash bracketing in A mode is also possible with an SCA adapter!

 **With some cameras "Fb" flash bracketing in A mode is not possible for technical reasons!**

With some cameras flash bracketing in the automatic mode is not possible if the mecablitz is not equipped with an SCA 301 standard foot.

Please refer to the operating instructions for the given camera and SCA adapter.

Activating "Fb" flash bracketing (Fig. 13):


- 1 Repeatedly depress the **Select** button ④ (Fig. 1) until „Fb“ appears on the display.
- 2 Turn the setting disk ⑤ (Fig. 1) to select the required correction factor for flash bracketing. „EV“ and the selected correction factor will then flash on the display. Press the setting disk in the direction of the arrow for storage. The setting will be automatically stored after approx. 5 seconds if the setting disk is not pressed.

„Fb 1“ appears on the display of the mecablitz to indicate the first shot within the flash exposure series. This picture is shot without any correction factor.

When the first shot has been taken, the display changes to „Fb 2“. In addition, „EV“ and the minus correction factor for the second picture are indicated.

After the second shot, the display changes to „Fb 3“ and additionally indicates „EV“ and the plus correction factor for the third exposure.

„Fb“, „EV“ and the correction value are all cancelled after the third shot.

 **The activating procedure must be repeated for a new flash bracketing sequence.**

To abort flash bracketing simply switch off the mecablitz briefly with the main switch.

12.8 Re-establishing the basic setting

Keep the **Mode** button ① (Fig. 1) depressed for at least 3 seconds to return the mecablitz to the basic setting. The adjusted operating mode is retained.

The following settings are cancelled:

- The TTL sub-modes „HSS“, „ETTL“, „3D“ and the Remote modes
- The manual sub-mode „HSS“
- The manually entered partial light output levels
- Flash bracketing „Fb“
- Focal length adaptations „E“, „APS“, „F1“ and „F2“
- Second-curtain synchronisation (REAR)

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- The modelling light function
- Locking the controls

The following settings are retained:

- Automatic shut-off after 10 minutes
- The „Bleep“ function On
- „AutoZoom“ On

12.9 Power-zoom reflector

If the mecablitz is fitted with an SCA adapter 3xx2 and operated with a camera that automatically transmits the focal length of the lens to the flash unit, then the zoom reflector position of the mecablitz is automatically adjusted to the focal length of the lens. „Auto Zoom“ is indicated on the display of the mecablitz.

If the mecablitz is operated with an SCA 3xx adapter or SCA 301 standard foot, then the zoom position of the flash reflector must be manually set:

- Turn the setting disk ⑤ (Fig. 1) until the arrow symbol is alongside „Zoom“ on the display.
- Press the setting disk in the direction of the arrow. The arrow symbol will flash.
- Turn the setting disk and select the required reflector position.
- Press the setting disk ⑤ (Fig. 1) in the direction of the arrow for storage. The setting will be automatically stored after 5 seconds if the setting disk is not pressed. The arrow symbol ceases to flash.

If you are using a zoom lens and do not constantly need the full power and maximum flash range of the mecablitz, you can leave the zoom reflector at the shortest focal length position of the zoom lens. In this manner the entire subject will be uniformly illuminated, thereby also eliminating the need to constantly adapt the zoom reflector position to the given focal length.

Example:

Let us assume that you are using a 28 mm – 80 mm zoom lens. In this case set the zoom reflector to the 28 mm position!

Changing the zoom position when using an SCA 3xx2 adapter and a data-transmitting camera:

The reflector's zoom position can also be changed if the mecablitz is operated with an SCA 3xx2 adapter and a data-transmitting camera:

Select the required zoom position as described above.

After storage the display will indicate „Zoom“ instead of „AutoZoom“. The selected zoom position of the reflector flashes on the mecablitz display signaling that this position has been manually changed.

Returning to „AutoZoom“ mode:

- Turn the setting disk ⑤ (Fig. 1) until the arrow symbol appears alongside „Zoom“ on the display.
- Press the setting disk in the direction of the arrow. The arrow symbol will flash.
- Turn the setting disk until „AutoZoom“ reappears on the display.
- Press the setting disk ⑤ (Fig. 1) in the direction of the arrow to store the setting. The setting is automatically stored after 5 seconds if the setting disk is not pressed. The arrow symbol ceases to flash.

 **The camera on to which the flash unit is mounted must be switched on!**

12.10 m-ft changeover

- Turn off the mecablitz with its main switch ② (Fig. 1).
- Press the button **Select** ④ (Fig. 1) and simultaneously slide the main switch ② (Fig. 1) from OFF to „On“.

13. Wide-angle diffuser

Pull the wide-angle diffuser ⑦ (Fig. 2) out from underneath the main reflector until the stop point is reached and then release. The main reflector automatically moves to 20 mm zoom position and the wide-angle diffuser automatically folds upwards. The distances and the zoom value are corrected on the LC display.

To insert the wide-angle diffuser ⑦ (Fig. 2) turn it 90° down, and push in entirely.

Modes that operate with measuring pre-flash or high-speed synchronisation (HSS) must not be set when working with wide-angle diffuser or reflector attachments such as colour filters, neutral density filter, Mecabounce, etc.

14. Manual flash exposure correction

 **Manual flash exposure correction is only possible if an SCA 3xx2 adapter is used.**


 **In the auto mode A, manual flash exposure correction is possible with an SCA 3xx and SCA 3xx2 adapter.**

The automatic exposure system of the mecablitz and most cameras is based on a subject reflection factor of 25 % (average reflection of subjects shot with flash). A dark background that absorbs a great deal of light, or a highly reflective bright background (e.g. when shooting against the light), can result in overexposure or underexposure.

To compensate for the aforementioned effect, the exposure can be manually corrected with a correction value adapted to the given photographic situation. This correction value depends on the contrast between subject and background! In the TTL and A mode of the mecablitz, manual flash exposure correction factors of -3 EV to +3 EV (f-stops) can be set in one-third increments. Many cameras have a setting element for exposure corrections which can also be used in the TTL flash mode.

Please refer to the explanations in the operating instructions for the given camera and the SCA adapter.

Exposure correction by changing the aperture on the lens is not possible in this instance because the camera's automatic exposure system will regard the changed aperture as the normal working aperture.

 **Dark subject in front of a bright background: Positive correction value (approx. 1 to 2 f-stops EV)**

Bright subject in front of a dark background: Negative correction value (approx. -1 to -2 f-stops EV)


The entering of a correction value may result in a change of the maximum flash range indicated on the LC display of the mecablitz and its adaptation to the correction value (depending upon the camera type and SCA adapter)!

Setting manual flash exposure correction:

- The mecablitz is operating in TTL flash mode or in A flash mode.
- Turn the setting disk ⑤ (Fig. 1) until the „EV“ symbol appears on the LC display. The arrow symbol alongside „EV“ indicates that a position has been reached where you can enter a correction value.
- Press the setting disk in the direction of the arrow. The arrow symbol alongside „EV“ starts to flash.
- Turn the setting disk to set a suitable correction value. The correction value is shown on the LC display of the mecablitz.
- Press the setting disk in the direction of the arrow for storage. The selected value is automatically stored after 5 seconds if the setting disk is not pressed. The arrow symbol alongside „EV“ ceases to flash. The set value is displayed on the LC display of the mecablitz.

Deactivating manual flash exposure correction:

- Turn the setting disk ⑤ (Fig. 1) until the arrow symbol appears alongside „EV“ on the LC display.
- Press the setting disk. The arrow symbol alongside „EV“ starts to flash.
- Turn the setting disk until the displayed correction value is extinguished on the display.
- Press the setting disk in the direction of the arrow to confirm deactivation. If the setting disk is not pressed the function is automatically deleted after 5 seconds. The arrow symbol alongside „EV“ ceases to flash.

 **Manual flash exposure correction is only possible if the camera supports this function! If the camera does not support this function, the correction value can be adjusted on the mecablitz, but cannot become effective!**

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Transmission of a correction value for flash exposure from the mecablitz to the camera is only possible in TTL mode with an SCA 3xx2 adapter which supports this function.

With some cameras, manual flash exposure corrections must be adjusted on the camera (see the operating instructions for the given camera). In this event the mecablitz will not display a correction value.

Some cameras permit manual flash exposure corrections to be completed on the camera or on the flash unit. Please refer to the operating instructions for the given camera or the SCA adapter to establish which setting has priority.

15. Maintenance and care

Remove any grime and dust with a soft, dry or silicon-treated cloth. Never use detergents that could damage plastic parts.

Forming the flash capacitor

The flash capacitor incorporated in the flashgun undergoes a physical change when the flashgun is not switched on for prolonged periods of time. For this reason it is necessary to switch on the flashgun for approx. 10 minutes every 3 months. The battery must supply sufficient power for flash-readiness to be indicated within one minute after the mecablitz was switched on.

16. Technical data

Guide numbers at ISO 100/21°, zoom 105 mm:

In the metric system: 54 In the imperial system: 177

12 auto apertures at ISO 100/21°:

f/1, f/1.4, f/2, f/2.8, f/4, f/5.6, f/8, f/11, f/16, f/22, f/32, f/45

Flash durations:

- Approx. 1/200th to 1/20,000th sec.
- In M mode approx. 1/200th sec. at full light output
- At 1/2 light output approx. 1/600th sec.
- At 1/4 light output approx. 1/1400th sec.

Sensor measuring angle: approx. 25°

Colour temperature:
approx. 5600 K

Film speed:
ISO 6 to ISO 6400

Synchronisation:
low-voltage ignition

Approx. number of flashes:

60* with NiCad batteries (600 mAh)

180* with high-capacity alkaline manganese batteries

Recycling time:

- with NiCad batteries (600 mAh)

5 sec. (in M mode)*

0.1 . . 5 sec. (in A-/TTL mode)

- with high-capacity alkaline manganese batteries

6 sec. (in M mode)*

0.1 . . 6 sec. (in A-/TTL mode)

*at full light output

Swivelling range and locking positions of zoom reflector:

Upwards: 60° 75° 90° / -7°

Anti-clockwise 30° 60° 90° 120° 150° 180°

Clockwise 30° 60° 90°

Dimensions approx. in mm (W x H x D):

75 x 125 x 108

Weight:

Flash unit without batteries: approx. 480 g

Included:

Flash unit, bag T54, Standard foot 301*, cover plate*, Operating Instructions, SCA 300/3002 Table

* (not with „Sets“)

Errors excepted. Subject to changes!

17. Glossary

- **Correct exposure indication in the camera's viewfinder**
When in automatic or TTL mode, many cameras indicate correct exposure or underexposure of the film by a corresponding signal in the viewfinder.
- **Automatic flash synch speed control**
When flash readiness is reached, most system cameras automatically change over to flash synch speed. On some cameras, slower shutter speeds are retained. If flash readiness indication disappears after the flash has been fired, or when the flash unit is switched off, then the camera will automatically return to the previously set shutter speed.
- **Triggering control**
If the aperture set on the lens and the prevailing lighting conditions require a shutter speed that equals or is faster than the flash synch speed, then a flash will not be fired when the shutter is released on the camera. The shot is then taken with the existing ambient light, thereby avoiding overexposure.
- **Optional 1st or 2nd curtain synchronisation (see Fig. 10 and 11)**
Two forms of flash synchronisation are available:
 - The moment when the first shutter curtain opens
 - The moment just before the second shutter curtain closesThe desired synchronisation is pre-selected on the SCA adapter. Second curtain synchronisation is particularly advantageous when using slow shutter speeds and shooting moving objects that have their own source of light.
- **Autofocus measuring beam**
The AF measuring beam is activated by the camera electronics when the ambient lighting level is no longer sufficient for automatic focusing. The beam projects a striped pattern on to the subject, and the camera uses this pattern to focus automatically. If an SCA 3xx autofocus adapter is used, then only the AF measuring beam integrated in this adapter will be activated.

- **Program flash mode**

Some cameras merge ambient light and flash illumination in the Program flash mode. The camera automatically sets the appropriate shutter speed/aperture combination and controls the flash in TTL mode. This ensures exceptionally simple operation of flash unit and camera.

- **TTL fill-in flash**

Some system cameras offer the possibility of TTL fill-in flash in addition to normal TTL flash control. This mode is used for daylight shots to brighten dense shadows and when shooting against the light. Based on the sensor measurement conducted inside the camera and the subsequent evaluation by the camera electronics the correct amount of flash light is used to produce a balanced exposure. In TTL fill-in flash mode, the camera automatically performs a flash exposure correction.

- **TTL flash exposure correction**

There are certain situations when the sensor inside the camera can be confused. This is the case with very dark subjects in front of a very bright background (resulting in an underexposed subject) or a particularly bright subject in front of a very dark background (resulting in an overexposed subject). Normal exposure correction can be completed by way of aperture and shutter speed control, changing the film speed, or a +/- correction on the camera. However, this changes all elements involved in an exposure. Consequently, a special flash exposure correction is possible on some cameras. With such flash exposure correction the overall exposure is retained, while the dark parts are brightened with fill-in flash. For further details please refer to the respective operating instructions for the given camera and the adapter.

- **Anti-red eye preflash (only with Nikon 3402 SCA adapter)**

Red eyes are a purely physical effect that always arises when people look directly at the camera, the ambient light is relatively dark, and the flash unit is mounted on or alongside the camera. The flash lights up the blood-filled retina at the back of the eye which passes through the pupil and is recorded by the camera as a red spot.

The red-eye reducing preflash function results in a significant improvement. In this function the mecablitz fires three visible, weak preflashes, before the

shutter curtain opens and the measuring beam is emitted for the multi-sensor (if permitted by the flash unit and camera), and only then fires the main flash.

These three preflashes induce the pupils to close further, thereby diminishing the red-eye effect. This function is available in any exposure programme. For further details please refer to the operating instructions for the given camera.

- **TTL-HSS mode**

This mode permits the use of flash at shutter speeds faster than the camera's flash synch speed. This is useful for portraiture in very bright ambient light and a wide aperture to limit the depth-of-field.

- **ETTL flash mode** (only with Canon SCA 3102)

In this mode the reflecting properties of the subject are established by a preflash before shooting.


- **ETTL-HSS mode**

This mode permits the use of flash at shutter speeds faster than the camera's flash synch speed.

- **3D-TTL flash control** (only with Nikon SCA 3402)

In this mode hardly visible measuring beams are emitted as the shutter release is depressed, before the shutter curtain opens. They supply the camera with the necessary information regarding brightness and contrast.

18. Optional extras

 **Metz does not accept any liability or grant a guarantee for faulty functions or damage to the mecablitz caused by the use of accessories from other manufacturers.**

- **SCA 3xx system adapters**

For flash operation with system cameras; see separate operating instructions.

- **SCA 3xx2 system adapters**

For flash operation with system cameras with digital data transmission of the SCA functions. Extends the number of functions compared with the SCA 3xx system; see separate operating instructions.

- **Colour Filter set 44-32**

(Item No. 00004432A)

Consists of 4 colour effect filters, and a clear filter for colour foils.

- **Mecabounce 44-90**

(Item No. 000044900)

A diffuser for soft illumination. Has a tremendous effect because the pictures are given a soft artistic quality. The complexion is more natural. The maximum flash ranges are reduced by the factor 2 in conformity with the loss of light.

- **Power Pack P50**

(Item No. 00012950A)

For a high number of flashes and short recycle times (approx. 300 full flashes). Please also order connecting cable V54-50 (Item No. 000054505).

- **Power Pack P40**

(Item No. 000129405)

A much higher capacity than conventional IEC KR 15/51 NiCad batteries to achieve a higher number of flashes. Please also order connecting cable V54-40 (Item No. 000054400).

- **Bounce diffuser 54-23**

(Item No. 000054236)

The soft directed light diminishes dense shadows.

- **Bracket 40-36/2**

(Item No. 000040363)

To attach the flashgun to the side of the camera.

- **Slave-Adapter SCA 3083**

(Item No. 000330838)

Enables cordless TTL flash control with mecablitz 54 MZ-3 and 70 MZ-4.

19. Troubleshooting hints

(Ca) = Canon System;
using the mecablitz with SCA 3102 adapter

(Mi) = Minolta System;
using the mecablitz with SCA 3302 adapter


(Ni) = Nikon System;
using the mecablitz with SCA 3402 adapter


(P) = Pentax System;
using the mecablitz with SCA 3702 adapter

Should the LC display indicate meaningless information or should the flashgun not work properly in the individual modes, then proceed as follows:

- Switch off the flashgun by its main switch.
- Remove the batteries.
- Switch on the flashgun for approximately 1 second and then switch it off again.
- Reload the used or new batteries.

Second-curtain synchronisation (REAR mode) cannot be set on the mecablitz.

- Second-curtain synchronisation (REAR) can only be set on the mecablitz if the latter is fitted with a suitable SCA 3xx2 adapter (see SCA adapter operating instructions) and is mounted on the switched-on camera. Data exchange between camera and SCA adapter must have taken place at least once (simply tap the camera release lightly without tripping the shutter). The camera must be able to support second-curtain synchronisation (see Camera and SCA adapter operating instructions)!
- (Ni) The Nikon 3D flash mode has been activated on the mecablitz and the  symbol is indicated on the display. The Nikon 3D flash mode cannot be combined with second-curtain synchronisation (REAR mode).
Remedy: First deactivate the 3D mode, then switch on REAR.

- (Ni) The pre-flash function to diminish the red-eye effect has been activated on the Nikon camera and the  symbol is indicated on the LC-display. The pre-flash function cannot be combined with second-curtain synch (REAR mode).

Remedy: First deactivate the red-eye pre-flash function on the camera, then select REAR mode.

- (Mi) With Minolta cameras, second-curtain synchronisation (REAR mode) must always be set on the camera! The mecablitz does not indicate the synchronisation mode! Refer to the camera's operating instructions to establish whether REAR mode is possible with the given camera, and how to proceed.

TTL (E-TTL) high-speed synchronisation (HSS) cannot be set on the mecablitz.

TTL (E-TTL) high-speed synchronisation (HSS) is currently only possible with the mecablitz 54 MZ-..!

- TTL (E-TTL) high-speed synchronisation (HSS) can only be set on the mecablitz if the latter is fitted with a suitable SCA 3xx2 adapter (see SCA adapter operating instructions) and is mounted on the switched-on camera. Data exchange between camera and SCA adapter must have taken place at least once (simply tap the camera's release button lightly without tripping the shutter). The camera must be able to support TTL (E-TTL) high-speed synchronisation in the selected flash mode (Manual M or TTL) (see camera and SCA adapter operating Instructions)!
- TTL (E-TTL) high-speed synchronisation (HSS) cannot be combined with the Metz cordless remote flash system.
- Depending upon the given camera system, TTL (E-TTL) high-speed synchronisation (HSS) can be activated on the mecablitz 54 MZ-.. in the M manual flash mode (Ca, Mi, Ni) or in the TTL mode (Ca, Mi)!
- To activate TTL (E-TTL) high-speed synchronisation (HSS) ensure that the secondary reflector of the mecablitz is not switched on!
- (Mi) TTL (E-TTL) high-speed synchronisation (HSS) is not possible when the main reflector is swivelled or tilted. The shutter speed is limited to the camera's flash synch speed. The display (H) for TTL (E-TTL) high-speed synchronisation (HSS) is extinguished in the camera's viewfinder!

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(Ni) The 3D mode cannot be set on the mecablitz when in TTL mode.

- REAR mode has been set on the mecablitz and "REAR" is indicated on the display.
Remedy: First switch on REAR mode and then 3D mode.
- The mecablitz must be fitted with the SCA 3402 adapter. The 3D TTL mode can only be set on the mecablitz if it is mounted on a switched-on camera that supports the 3D mode. Data exchange between camera and SCA adapter must have taken place at least once (simply tap the camera release lightly without tripping the shutter).
- The 3D TTL mode is not supported if the mecablitz is not ready for firing, if the reflector has been swivelled out of its normal position or if the secondary reflector of the mecablitz has been switched on!
- 3D TTL flash operation is not possible in the Metz cordless remote mode!
- 3D TTL mode is only possible with the mecablitz 40 MZ-3(i), 50 MZ-5, 54 MZ-.. and 70 MZ-... flash units!

(Ca) The E-TTL mode cannot be activated.

- The mecablitz must be fitted with the SCA 3102 adapter. The E-TTL mode can only be set on the mecablitz if it is mounted on a switched-on camera that supports the E-TTL mode. Data exchange between camera and SCA adapter must have taken place at least once (simply tap the camera release lightly without tripping the shutter).
- The E-TTL mode is not supported if the secondary reflector of the mecablitz has been switched on!
- The E-TTL mode is switched over to normal TTL mode when the secondary reflector of the mecablitz is activated
Problem EOS D30: The mecablitz can no longer be triggered when in TTL mode; change over to "Automatic"!
- The E-TTL flash mode is not possible in the Metz cordless remote flash mode!
- The E-TTL mode is only possible with the mecablitz 40 MZ-3i, 40 MZ-1i and 54 MZ-.. flash units!

Flash readiness is not achieved on the mecablitz when in remote flash mode.

- The secondary reflector of the mecablitz has been switched on; the symbol is indicated on the display.
Remedy: Switch off the secondary reflector.

Flash readiness indicator on the mecablitz is flashing.

- The modelling light function has been activated on the mecablitz.
Remedy: Deactivate the modelling light function on the mecablitz.

The ISO film speed cannot be adjusted on the mecablitz.

- The mecablitz has been fitted with an SCA 3xx2 adapter and is operated with a camera that transmits the film speed data to the mecablitz. In this case the ISO film speed setting is blocked.

The aperture cannot be adjusted on the mecablitz.

- The mecablitz has been fitted with an SCA 3xx2 adapter and is operated with a camera that transmits the aperture data to the mecablitz. In this case aperture setting is blocked.

The LC-display of the mecablitz displays "-" in place of the distance.

- The reflector of the mecablitz has been swivelled out of its basic position. The distance can only be displayed if the reflector is in its basic position, i.e. it has not been swivelled either horizontally or vertically.

The symbol for the secondary reflector on the LC-display of the mecablitz is flashing. The flash readiness symbol on the mecablitz lights up.

- The secondary reflector has been activated even though the main reflector is in its basic position, i.e. it has not been swivelled out of its basic position. However, the use of a secondary reflector only makes sense if it takes over the fill-in flash function when the main reflector has been swivelled or tilted. The flashing secondary reflector symbol indicates that the secondary reflector must be switched off. The flashing symbol on the display disappears as soon as the secondary reflector is switched off. The symbol appears permanently when the main reflector is swivelled out of its basic position.

The symbol for the secondary reflector on the LC-display of the mecablitz is flashing. The flash readiness indicator on the mecablitz does not light up.

- The mecablitz has been set for remote controller operation. "Co" is indicated on the LC-display. However, remote mode is only supported by the main reflector. The mecablitz does not fire a flash because flash readiness is not indicated.

Remedy: Either deactivate the remote controller mode or switch off the secondary reflector.

The LC-display of the mecablitz displays "Co" in place of the distance.

- The mecablitz is in remote controller mode. Distances are never indicated in this mode.

Flash exposure correction cannot be selected with the setting disk when the mecablitz is in remote controller mode.

 **Flash exposure correction is never effective when in automatic remote mode.**

- Flash exposure correction can only be activated in TTL remote mode when this is set **before** the mecablitz is set for controller mode. The correction value is not indicated in remote controller mode, but it does remain effective. The LC display of the mecablitz indicates the remote address (remote channel) "Ad1" or "Ad2" instead of the correction value.

(Ni) The Nikon fill-in flash function "Matrix-controlled fill-in flash" or "3D multi-sensor fill-in flash" cannot be set on the mecablitz.

- The given fill-in flash mode can only be set on the mecablitz if the latter has been fitted with an SCA 3402 adapter and mounted on a switched-on camera that supports the given fill-in flash function. Data exchange between camera and SCA adapter must have taken place at least once (simply tap the camera release lightly without tripping the shutter).
- "3D multisensor fill-in flash" (Nikon) is not supported in remote mode, when the main reflector is swivelled out of its basic position or when the secondary reflector has been switched on. Consequently, this function cannot be activated under the above conditions.

- The given controlled Nikon fill-in flash mode depends on the given camera model.

The aperture symbol  and stop value flash on the LC display of the mecablitz.

- The light-controlling range of the mecablitz in automatic flash mode is being exceeded under the given picture-shooting conditions or with the given camera settings.

Remedy: Darken the ambient area of the shot; load a less sensitive film; or set a smaller aperture opening on the camera or mecablitz.

The AF red-light emitter of the mecablitz is not activated.

Possible causes:

- Ambient light is sufficient for the camera's AF sensor to enable focusing.
- If necessary the camera will activate its own AF illuminator.
- An AF mode other than Single-AF (S) has been activated.
- A decentral AF metering area has been activated on the camera.

Remedy:

- Set the Single-AF or S camera AF operating mode (see the operating instructions for the given camera).
- Activate the central AF sensor in the camera's viewfinder.

Problems with the remote controller mode and flash bracketing.

- A flash bracketing sequence is not possible in remote controller mode! If flash bracketing has been set and the mecablitz is then set for remote mode, flash bracketing will no longer be displayed, nor is it carried out!

Remote controller mode with flash exposure correction.

- If flash exposure correction is set on the mecablitz, followed by a change to remote controller mode, then the subsequent shots will be exposed with this correction value, but the mecablitz display will not (!) indicate the correction value!

(Ni) No Nikon underexposure display in remote mode.

- Some Nikon cameras indicate a warning signal (-EV) on the LC display of the mecablitz if a shot is underexposed by flash. The mecablitz does not support this function in remote mode.


No REAR mode with HSS high-speed synchronisation.

- REAR mode (second-curtain synchronisation) cannot be set when HSS high-speed synchronisation has been activated on the mecablitz.
- Setting HSS high-speed synchronisation when REAR mode is set deactivates the REAR mode!

The ISO film speed is not indicated on the display of the mecablitz.

- The mecablitz is either in remote mode ("Co" or "SL") or in stroboscope mode. The ISO value is never indicated on the LC display of the mecablitz when these operating modes have been set.
- The Canon and Minolta system cameras do not indicate the ISO value on the LC display!

Nikon 3D flashlight pulses cause uncontrolled slave operation.

GB  ***The mecablitz slave is triggered in an uncontrolled manner when the sensor in the SCA 3083 slave adapter receives the light from a flash unit operating in Nikon 3D mode!***

- This can only be remedied by changing from 3D mode to normal TTL flash mode (without 3D).

The exposure correction value flashes on the mecablitz display.

A flash exposure correction value (EV) is set on the mecablitz, e.g. in TTL flash mode. The correction value flashes on the mecablitz LC-display after it has been stored.

Possible cause:

The camera system does not allow the setting of a correction value on the mecablitz! If necessary, the required correction value must be set on the camera (see operating instructions for the given camera). The correction value flashing on the mecablitz LC-display does not influence the exposure!

NOTE: The flashing correction value as a warning signal is not supported by all camera systems! Flash exposure correction in "A" automatic mode of the mecablitz can be set and executed with most system cameras (Minolta is the exception!).

Flash bracketing cannot be set in TTL mode.


The "Fb" flash bracketing function cannot be selected in the TTL mode with the "Select" key of the mecablitz.

Possible cause:

Various cameras and camera systems do not support the mecablitz flash exposure correction setting when in TTL mode. Since flash bracketing operates with exposure correction values, selection of flash bracketing is suppressed right from the outset in the mecablitz menu. However, "Fb" flash bracketing in "A" automatic mode of the mecablitz can be set and executed with most system cameras (Minolta is the exception!). "Fb" flash bracketing is not adjustable on the mecablitz 70 MZ-4!

(Pe) No flash readiness is indicated in the camera's viewfinder even though the mecablitz flash ready signal is illuminated. The mecablitz is not triggered when the picture is shot.

- The mecablitz operates in spot-beam mode; only the AF red-light emitter of the mecablitz is supported. The operating mode selector of the SCA 3702 adapter is in the "SB" position.

Remedy: Set the operating mode selector of the SCA 3702 adapter to the extreme left-hand position , i.e. first-curtain synchronisation.

(Pe) Correct exposure confirmation is given in the camera's viewfinder (flash ready symbol flashes) even though no picture was shot.

- This is a warning signal. The position of the zoom reflector is not sufficient to ensure complete illumination of the entire subject. Automatic focal length adaptation (AUTO-ZOOM, CZ) may have been deactivated on the mecablitz, and a reflector focal length has been selected that is longer than the focal length of the lens. Example: Focal length of the lens: 70 mm; focal length of the reflector: 85 mm.

Remedy: Activate automatic focal length adaptation on the mecablitz (AUTO-ZOOM or CZ) or ensure that the reflector focal length is identical with, or shorter than, the focal length of the lens.

Example: Focal length of the lens: 70 mm; reflector focal length: 70 mm, 50 mm or shorter! Please refer to the mecablitz operating instructions for setting details!

(Pe) The power zoom reflector of the mecablitz automatically assumes the 35 mm position, even though a lens with a different focal length is being used. "Auto-Zoom" is indicated on the mecablitz LC display.

- A non-AF lens, or a lens that does not transmit focal length data to the camera, is being used. Consequently, the mecablitz automatically assumes the 35 mm reflector position.

Remedy: Adjust the reflector position of the mecablitz manually to the focal length of the given lens (see mecablitz operating instructions).

The flash ready indicator in the camera's viewfinder may flash with reflector focal lengths that are longer than 35 mm, but this is of no consequence for the subsequent exposure. In this instance please observe the correct exposure confirmation given by the mecablitz!

The mecablitz does not fire flashes.

- The mecablitz has automatically switched itself off.
- After the mecablitz has been switched on and after automatic switch-off, tap the camera release button lightly without tripping the shutter to permit an adaption of the settings required for the picture shooting situation.

The mecablitz was unable to lock into a zoom position and "ZE" is indicated on the mecablitz LC display.

The batteries may be almost exhausted or the power is no longer sufficient to drive the mechanical operations.

Switch the mecablitz off and then on again and/or replace the exhausted batteries.

Disposal of batteries

Do not dispose of spent batteries with domestic rubbish.

Please return spent batteries to collecting points should they exist in your country!

Please return only fully discharged batteries.

Normally, batteries are fully discharged if:

- the device they powered switches itself off and indicates "Spent Batteries".
- they no longer function properly after prolonged use.

To ensure short-circuit safety please cover the battery poles with adhesive tape.

	ISO	Zoom							
		20	24	28	35	50	70	85	105
D	6/9°	5,5	7	7,5	8,5	10	11	11	13
	8/10°	6	8	9	9,5	11	12	12	15
	10/11°	7	9	9,5	10	12	13	14	17
	12/12°	8	10	10,5	12	14	15	16	19
	16/13°	9	11	12	13	15	17	18	21
F	20/14°	10	12	13	15	17	19	20	24
	25/15°	11	14	15	17	20	22	23	27
	32/16°	12	15	17	19	22	24	25	30
	40/17°	13	17	19	21	25	27	28	33
	50/18°	15	19	21	24	28	31	32	38
NL	64/19°	17	22	24	27	31	34	36	42
	80/20°	19	25	27	30	35	39	41	48
	100/21°	22	28	31	34	40	44	46	54
	125/22°	24	31	34	38	44	49	51	60
	160/23°	28	35	39	43	50	55	57	68
GB	200/24°	31	39	43	48	56	62	64	76
	250/25°	35	44	49	54	63	69	73	85
	320/26°	39	50	55	60	71	78	81	96
	400/27°	44	56	62	68	80	88	92	108
	500/28°	49	63	69	76	89	98	103	120
I	650/29°	56	70	78	86	100	110	115	136
	800/30°	62	79	87	96	113	124	130	152
	1000/31°	70	89	98	108	126	139	145	171
	1250/32°	79	100	110	121	142	156	163	192
	1600/33°	88	112	124	136	160	176	184	216
E	2000/34°	99	126	139	153	179	197	206	242
	2500/35°	112	141	156	172	200	220	230	272
	3200/36°	125	159	175	193	226	248	260	304
	4000/37°	141	178	196	216	254	278	292	342
	5000/38°	158	200	220	242	284	312	326	384
	6400/39°	177	224	248	272	320	352	368	432

Tabelle 1: Leitzahlen bei maximaler Lichtleistung (P 1)

Tableau 1: Nombres-guides pour la puissance maximale (P 1)

Tabel 1: Richtgetallen bij vol vermogen (P 1)

Table 1: Guide numbers at maximum light output (P 1)

Tabella 1: Numeri guida a potenza piena (P 1)

Tabla 1: Números-guía con máxima potencia de luz (P 1)

Teillichtleistung Niveaux de puissance Deelvermogensstappen Partial light output Livello di potenza Potencia parcial (P=Flash Power)	Blitzleuchtzeit (s) Durée d'éclair (s) Flitsdur (s) Flash duration Durata del lampo Duración de destello	Leitzahl Nombre-guide Richtgetal Guide number Numero guida Número-guía ISO 100/50 mm	Leitzahl Nombre-guide Richtgetal Guide number Numero guida Número-guía ISO 100/105 mm
1	1/200	40	54
1/2 + 2/3			
1/2 + 1/3			
1/2	1/600	28	38
1/4 + 2/3			
1/4 + 1/3			
1/4	1/1500	20	27
1/8 + 2/3			
1/8 + 1/3			
1/8	1/3000	14	19
1/16 + 2/3			
1/16 + 1/3			
1/16	1/5000	10	13,5
1/32 + 2/3			
1/32 + 1/3			
1/32	1/8000	7	9,5
1/64 + 2/3			
1/64 + 1/3			
1/64	1/13000	5	6,5
1/128 + 2/3			
1/128 + 1/3			
1/128	1/20000	3,5	5
1/256 + 2/3			
1/256 + 1/3			
1/256	1/26000	2,5	3

Tabelle 2: Blitzleuchtzeiten in den Teillichtleistungsstufen

Tableau 2: Durée de l'éclair pour les différents niveaux de puissance

Tabel 2: Flitsduur en deelvermogensstappen

Table 2: Flash durations at the individual partial light output levels

Tabella 2: Durata del lampo ai vari livelli di potenza flash

Tabla 2: Duraciones de destellos en los escalones de potencias parciales de luz

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Blitzfrequenz f(Hz) (Blitze/Sek.)	Blitzanzahl														
Fréquence f(Hz) (éclairs/seconde)	Nombre d'éclairs														
Flitsfrequentie f(Hz) (Flitsen/sec.)	Aantal flitsen														
Flash frequency f(Hz) (Flashes/sec.)	Number of flashes														
Freq. di emissione f(Hz) (lampi al sec.)	Numero lampi														
Frecuencia f(Hz) (destellos/seg.)	Números de destellos														
	2	3	4	5	6	7	8	9	10	15	20	25	30	40	50
1	2	4	4	8	8	8	8	15	15	15	30	30	30	60	60
2	1	2	2	4	4	4	4	8	8	8	15	15	15	30	30
3	1	1	2	2	2	4	4	4	4	8	8	15	15	15	30
4	1/2	1	1	2	2	2	2	4	4	4	8	8	8	15	15
5	1/2	1	1	1	2	2	2	2	2	4	4	8	8	15	15
6	1/2	1/2	1	1	1	2	2	2	2	4	4	8	8	8	15
7	1/2	1/2	1	1	1	1	2	2	2	4	4	4	8	8	8
8	1/4	1/2	1/2	1	1	1	1	2	2	2	4	4	4	8	8
9	1/4	1/2	1/2	1	1	1	1	1	2	2	4	4	4	8	8
10	1/4	1/2	1/2	1/2	1	1	1	1	1	2	2	4	4	4	8
15	1/4	1/4	1/2	1/2	1/2	1/2	1	1	1	1	2	2	2	4	4
20	1/8	1/4	1/4	1/4	1/2	1/2	1/2	1/2	1/2	1	1	2	2	2	4
25	1/8	1/8	1/4	1/4	1/4	1/2	1/2	1/2	1/2	1	1	1	2	2	2
30	1/15	1/8	1/4	1/4	1/4	1/4	1/2	1/2	1/2	1/2	1/2	1	1	2	2
35	1/15	1/8	1/8	1/4	1/4	1/4	1/4	1/2	1/2	1/2	1	1	1	2	2
40	1/15	1/8	1/8	1/8	1/4	1/4	1/4	1/4	1/4	1/2	1/2	1	1	1	2
45	1/15	1/15	1/8	1/8	1/4	1/4	1/4	1/4	1/4	1/2	1/2	1	1	1	2
50	1/15	1/15	1/8	1/8	1/8	1/4	1/4	1/4	1/4	1/2	1/2	1	1	1	1

Tabelle 3: Kameraverschlusszeiten im Stroboskop-Betrieb
 Tableau 3: Vitesses d'obturation du reflex en mode stroboscope
 Tabel 3: Belichtingstijden bij de stroboscoopfunctie
 Table 3: Camera shutter speeds in stroboscopic mode
 Tabella 3: Tempi di posa per il modo stroboscopico
 Tabla 3: Velocidades de obturación en el funcionamiento estroboscópico

Kameraverschlusszeit in Sekunden
 Vitesses d'obturation du reflex en s
 Belichtingstijden in seconden
 Camera shutter speed in seconds
 Tempo di posa in secondi
 Velocidad de obturación en segundos

Batterietyp Type de pile/accu Type voeding Battery type Tipo batterie Tipo de pila	Blitzfolgezeiten Temps de recyclage Flitsvolgtijden Recycling times Tempi di ricarica Tiempo de secuencia de dest. M	A / TTL	Blitzanzahl Nombre d'éclairs Aantal flitsen Number of flashes Numero ampi Número de destellos min. /max.
High Power Alkali-Mangan Alcaline au Mg hautes perf. High Power alkalimangaan High-power alkaline-manganese Alcal. al mangan. ad alta capacità Alcalino-Manganesas High power	6 s	0,1 ... 6 s	180 ... 3000
NC-Akku 600 mAh	5 s	0,1 ... 5 s	60 ... 1200
NiMh-Akku 1200 mAh	5 s	0,1 ... 5 s	100 ... 2000

Tabelle 4: Blitzfolgezeiten und Blitzanzahl bei den versch. Batterietype

Tableau 4: Temps de recyclage et autonomie pour différents types de piles

Tabel 4: Flitsvolgtijden en aantallen flitsen bij de verschillende voedingstypes

Table 4: Recycling times and number of flashes with different battery types

Tabella 4: Tempi di ricarica e numero lampi con i diversi tipi di batterie

Tabla 4: Tiempos de secuencias de dest. y núm. de dest. con los dist. tipos de pilas


	Zoom							
	20	24	28	35	50	70	85	105
	—	13	14	14,5	18	20	21	24

Tabelle 5: Maximale Leitzahlen* im HSS-Betrieb

Tableau 5: Nombres-guides en mode HSS

Tabel 5: Max. Richtgetallen bij de HSS functie

Table 5: Maximum guide numbers at HSS-Mode

Tabella 5: Potenza piena a numeri guida per il modo HSS

Tabla 5: Números-guía max. en el funcionamiento HSS

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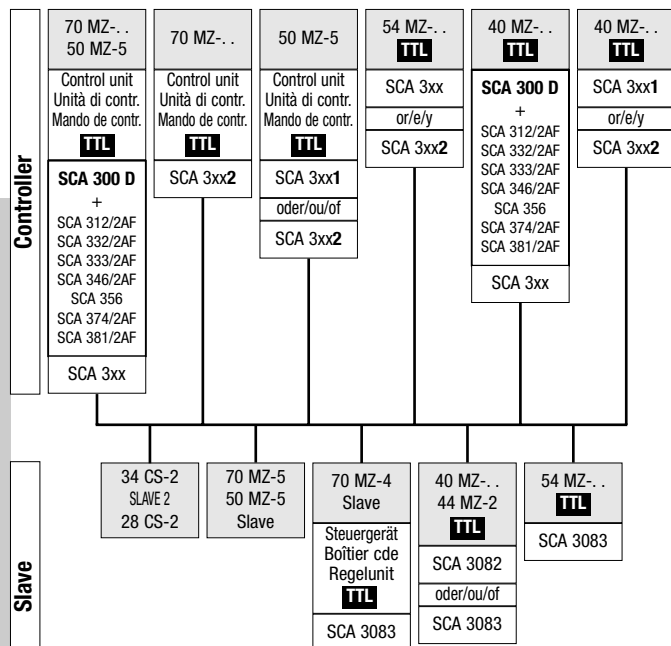
Remote control

Controllo a distanza

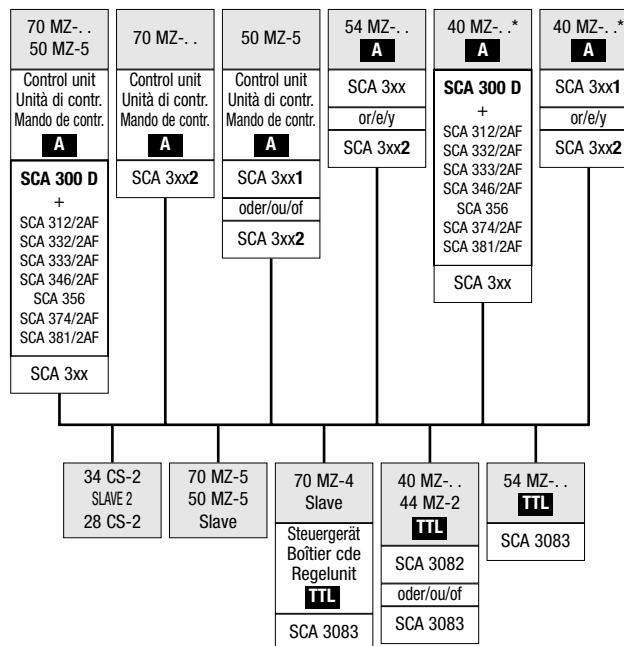


Remote control / Controllo a distanza / Funcionamiento remoto

TTL remote control / Contr. TTL a distanza / Funcionamiento remoto TTL

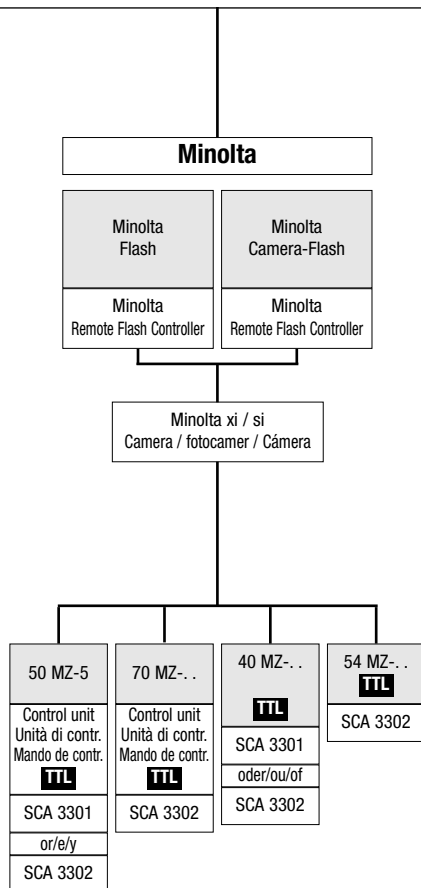


„A“ remote control / Contr. a distanza „A“ / Funcionamiento remoto A



*not possible with 40 MZ-2
*funzione non previste con 40 MZ-2
*no es posible con el 40 MZ-2

Funcionamiento remoto



GB

I

E

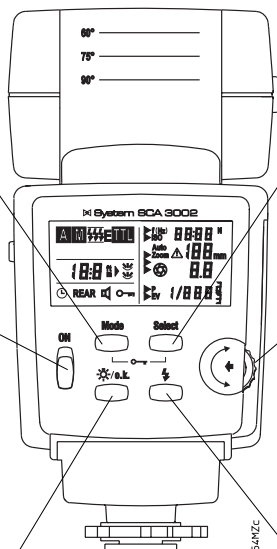
① Betriebsartenwahl
Sélecteur de mode
Funcitieschakelaar
Mode selector
Selettore del modo di funzionamento
Selección de modos de funcionamiento

② Hauptschalter
Interrupteur général
Hoofdschakelaar
Main switch
Interruttore princip.
Interruptor principal

③ Displaybeleuchtung
Éclairage de l'écran
Displayverlichting
Display lighting
Tasto di illumin. del display
Iluminación del display

und / et / voor / and / e

Belichtungs o.k. Anzeige
Exposition o.k.
Belichting o.k.-aanduiding
Exposure ok indicator
Indicazione di corretta espos.
Indicación de exposición o.k.



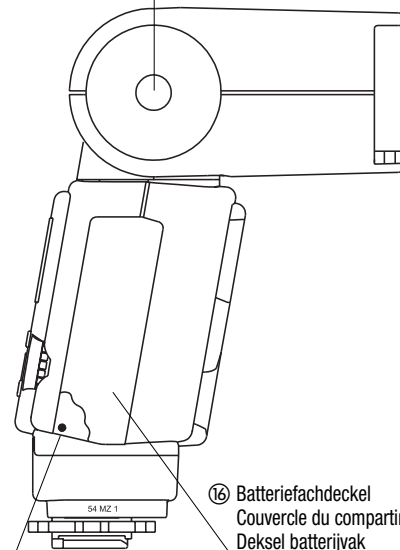
**Bild 1
Fig. 1
Afb. 1
Grab. 1**

④ Vorwahltaste für Sonderfunktionen
Présélection des fonctions spéciales
Voorkeuzetoets voor bijzond. functies
Preselector for special functions
Tasto di preselezione delle funzioni speciali
Tecla de selección de funciones especiales

⑤ Einstellrad
Molette
Instelwiel
Setting disk
Manopola di regolazione
Rueda de ajuste

⑥ Handauslösetaste und
Blitzbereitschaftsanzeige
Bouton d'essai et témoin de recyclage
Ontspanknop voor handbediening en
flitsaparaat-aanduiding
Manual firing button and
flash-ready indicator
Pulsante test (emissione manuale del
lambo) e indicazione di "pronto lambo"
Tecla de disparo manual e
indicación de disposición de disparo

⑭ Entriegelungsknopf Hauptreflektor
Bouton de déverrouillage pour réflecteur
Ontgrendelingsknop Hoofdreflector
Unlocking button for the main reflector
Pulsante di sblocco della parabola principale
Botón de desbloqueo del reflector principal



**Bild 3
Fig. 3
Afb. 3
Grab. 3**

Entriegelungsknopf SCA
Bouton de déverrouillage de SCA
Ontgrendelingsknop SCA
SCA unlocking button
Pulsante di sblocco SCA
Botón de desbloqueo SCA

⑮ Batteriefachdeckel
Couvercle du compartiment des piles
Deksel batterijvak
Battery compartment lid
Coperchio del vano batteria
Tapa del compartimento de pilas

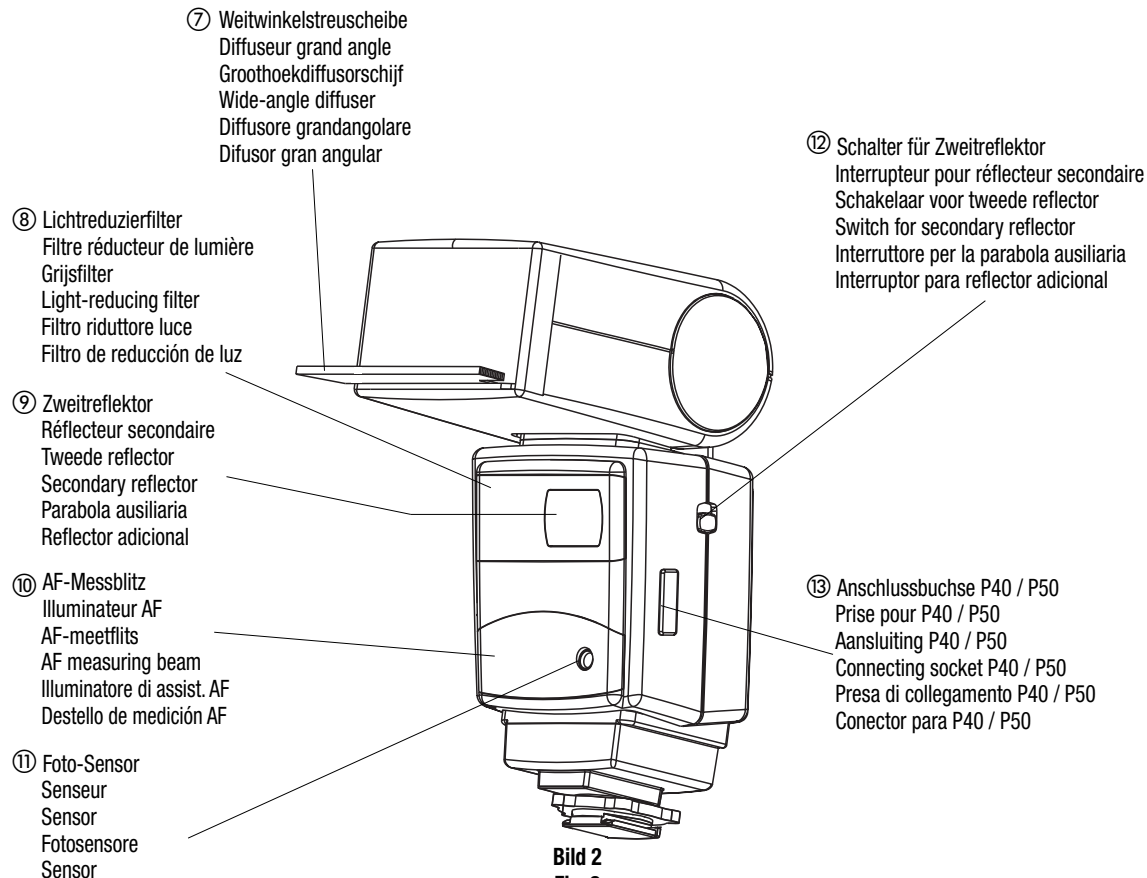


Bild 2
Fig. 2
Afb. 2
Grab. 2

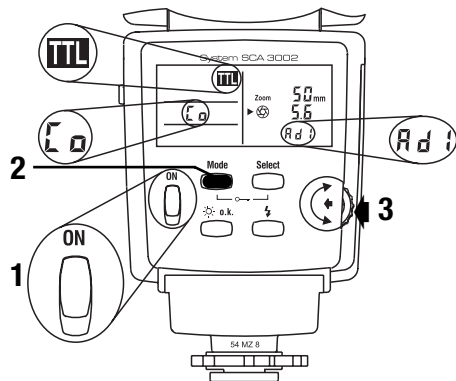


Bild 4 / Fig. 4 / Afb. 4 / Grab. 4



Bild 6 / Fig. 6 / Afb. 6 / Grab. 6

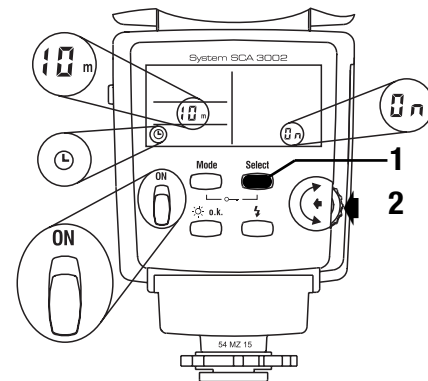


Bild 8 / Fig. 8 / Afb. 8 / Grab. 8

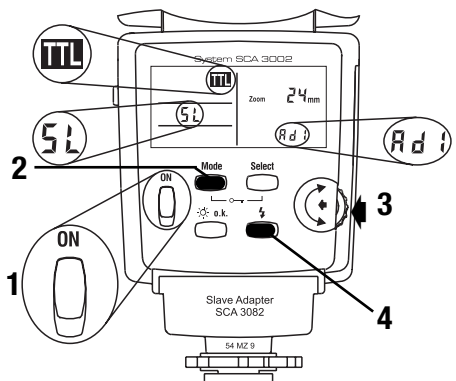


Bild 5 / Fig. 5 / Afb. 5 / Grab. 5

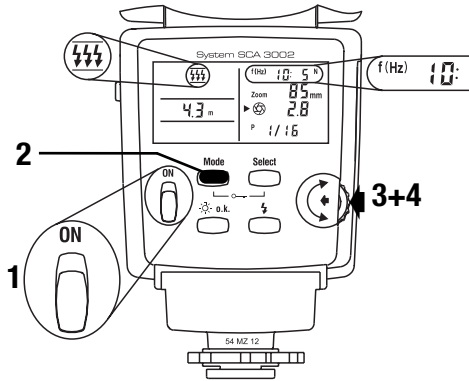


Bild 7 / Fig. 7 / Afb. 7 / Grab. 7

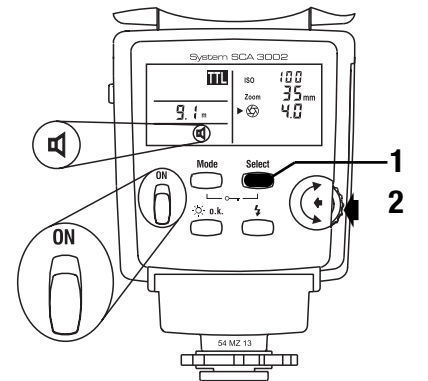


Bild 9 / Fig. 9 / Afb. 9 / Grab. 9



Bild 10 / Fig. 10 / Afb. 10 / Grab. 10

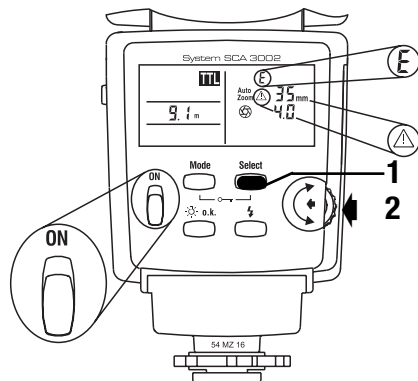


Bild 12 / Fig. 12 / Afb. 12 / Grab. 12



Bild 11 / Fig. 11 / Afb. 11 / Grab. 11

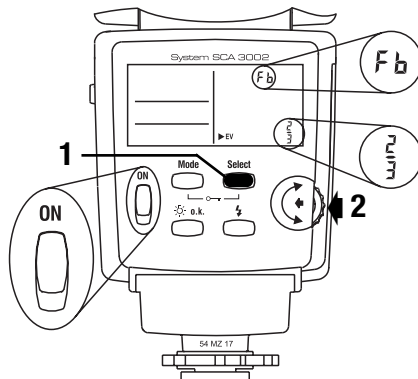


Bild 13 / Fig. 13 / Afb. 13 / Grab. 13

CE Hinweis: D

Im Rahmen des CE-Zeichens wurde bei der EMV-Prüfung die korrekte Belichtung ausgewertet.

⚠ SCA-Kontakte nicht berühren !

In Ausnahmefällen kann eine Berührung zur Beschädigung des Gerätes führen.

CE Opmerking: NL

In het kader de CE-markering werd bij de EMV-test de correcte belichting bepaald.

⚠ SCA Contacten niet aanraken !

In uitzonderlijke gevallen kan aanraken leiden.

CE Avvertenza: I

Nell'ambito delle prove EMV per il segno CE è stata valutata la corretta esposizione.

⚠ Non toccate mai i contatti SCA !

In casi eccezionali il toccare può causare danni all'apparecchio.

CE Remarque: F

L'exposition correcte a été évaluée lors des essais de CEM dans le cadre de la certification CE.

⚠ Ne pas toucher les contacts du SCA !

Il peut arriver que le contact avec les doigts provoque la dégradation de l'appareil.

CE Note: GB

Within the framework of the CE approval symbol, correct exposure was evaluated in the course of the electromagnetic compatibility test.

⚠ Do not touch the SCA contacts !

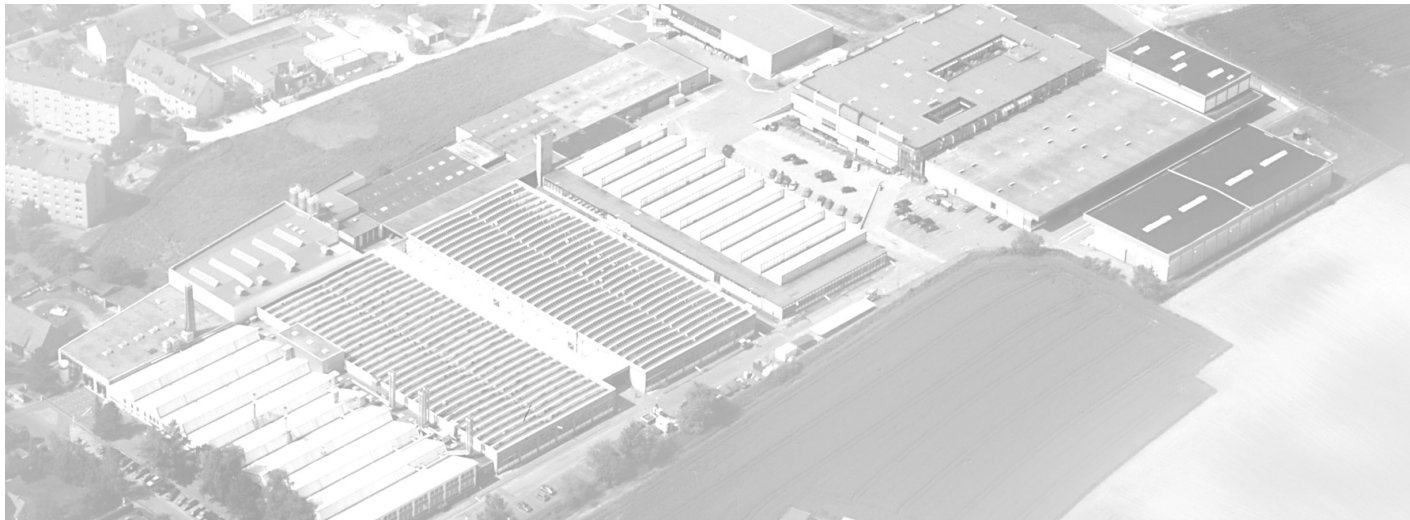
In exceptional cases the unit can be damaged if these contacts are touched.

CE Atención: E

El símbolo CE significa una valoración da exposición correcta con la prueba EMV (prueba de tolerancia electromagnética).

⚠ No tocar los contactos SCA !

En algunos casos un contacto puede producir daños en el aparato.



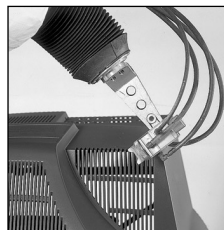
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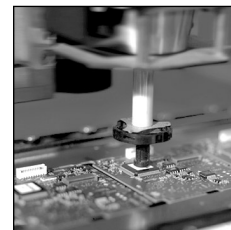
Consumer electronics



Photoelectronics



Plastics technology



Industrial electronics

Metz. Always first class.



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